Approved_____ Mayor
Veto _____
Override _____

Agenda Item No.

ORDINANCE NO. _____

ORDINANCE AMENDING CHAPTER 24 OF THE CODE OF MIAMI-DADE COUNTY, FLORIDA; AMENDING SECTION 24-3 PROVIDING DEFINITIONS; SECTION 24-5 RELATING TO DUTIES AND POWERS OF THE DIRECTOR, ENVIRONMENTAL RESOURCES MANAGEMENT; SECTION 24-11 RELATING TO COMPLIANCE TESTING; SECTION 24-12.2 RELATING TO REGULATIONS OF UNDERGROUND STORAGE FACILITIES; SECTION 24-35.1 RELATING TO OPERATING PERMITS; SECTION 24-37 RELATING TO ABNORMAL OCCURRENCES; SECTION 24-57 RELATING TO CIVIL LIABILITY, JOINT AND SEVERAL LIABILITY AND ATTORNEYS' FEES; CREATING SECTION 24-11.1 ESTABLISHING CLEAN-UP TARGET LEVELS AND PROCEDURES FOR SITE REHABILITATION ACTIONS; PROVIDING SEVERABILITY, INCLUSION IN THE CODE AND EXCLUSION FROM THE CODE, AND AN EFFECTIVE DATE.

BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF MIAMI-DADE COUNTY, FLORIDA:

Section 1. Section 24-3 of the Code of Miami-Dade County, Florida, is hereby amended to read as follows:[1]

Sec. 24-3 Definitions

* * *

24-3 (74) *Water Pollution* shall mean the introduction in>>, on or upon<<any surface >>water<< or [[~~under~~]]ground water, or tidal [[~~salt~~]] water, [[~~or~~]] >>of << any organic or inorganic matter or deleterious substances in such quantities, proportions>>,<< [[~~or~~]] accumulations >>or levels<< which >>exceed any of the clean-up target levels (CTLs) set forth in Section 24-11.1, or which<< are injurious to human, plant, animal, fish and other aquatic life, or property, or which unreasonably interfere with the comfortable enjoyment of life or property, or the conduct of business.

24-3 (194) *Ground Pollution* shall mean the introduction into or upon any ground of any organic or inorganic matter or deleterious substances in such quantities, proportions or accumulations which are injurious to human, plant, animal, fish and other aquatic life, or property, or which unreasonably interfere with the comfortable enjoyment of life or property, or the conduct of business. It shall be a rebuttable presumption that the introduction of any hazardous waste as defined in Section 24-3 (103) or hazardous materials as defined in Section 24-3 (33) into or upon the ground>>, which

[1] Words stricken through and/or [[double bracketed]] shall be deleted. Underscored and/or >>double arrowed<< words constitute the amendment proposed. Remaining provisions are now in effect and shall remain unchanged.

exceeds any of the clean-up target levels (CTLs) set forth in Section 24-11.1, shall constitute and<<shall be deemed to be ground pollution.

>>24-3 ( ) *Contaminant* shall mean any substance present in any medium which may cause an adverse effect upon public health, public safety, public welfare or the environment, or causes a nuisance as defined in Section 24-3 (42), Section 24-3 (58), Section 24-14 or Section 24-26.<<

>>24-3 ( ) *CTLs* shall mean Clean-up Target Levels as set forth in Section 24-11.1. <<

>>24-3 ( ) *Engineering control* shall mean a process or structure which eliminates or reduces the migration of contaminants or eliminates or reduces the exposure of human and environmental receptors to contaminants.<<

>>24-3 ( ) *Free product* shall mean any non-aqueous liquid.<<

>>24-3 ( ) *Hazard index* shall mean the sum of more than one hazard quotient for multiple contaminants or for multiple exposure pathways.<<

>>24-3 ( ) *Hazard quotient* shall mean the ratio of a single contaminant exposure level over a specified time period to a reference dose for that contaminant derived from a similar exposure period.<<

>>24-3 ( ) *Institutional control* shall mean a restriction on the use of, or access to, a site to eliminate or minimize exposure to contaminants. Examples include, but are not limited to, deed restrictions, restrictive covenants, or conservation easements.<<

>>24-3 ( ) *Monitoring well* or *test well* shall mean a well constructed with a surface seal and a sand filter pack in accordance with accepted technical design practices to provide for the collection of representative groundwater samples for laboratory analyses. Such wells may also be used to detect the presence of free product or collect water-level elevation data to aid in determining the direction of groundwater flow.<<

>>24-3 ( ) *Natural attenuation* shall mean a method of site rehabilitation action which allows natural processes to contain the spread of contaminants and to reduce the concentration of contaminants in groundwater and soil. Natural attenuation processes include, but are not limited to, diffusion and dispersion in conjunction with the following: sorption, biodegradation, chemical reactions, or volatilization.<<

>>24-3 ( ) *Naturally occurring background concentrations* shall mean concentrations of contaminants which are naturally occurring in the groundwater, surface water, soil or sediment in the vicinity of a site.<<

>>24-3 ( ) *Party or parties responsible for site rehabilitation actions* shall mean the discharger or, if the discharger is unknown or the contamination was the result of a previously unreported discharge, the property owner or operator who is subject to the provisions of Section 24-11.1 (2).<<

>>24-3 ( ) *Risk Reduction* shall mean the lowering or elimination of the level of risk posed to human health or the environment through interim remedial actions, remedial action, or institutional, and, if applicable, engineering controls. <<

>>24-3 ( ) *Site rehabilitation action* or *SRA* shall mean source removal, if applicable, site assessment and, if required, one or more of the following: risk assessment, monitoring or remediation. These site rehabilitation actions serve to characterize the nature and extent of contamination and to reduce the levels of contaminants through applicable treatment methods to comply with the clean-up target levels (CTLs) set forth in this chapter.<<

>>24-3 ( ) *SRA* (see Site rehabilitation action)<<

>>24-3 ( ) *Test well* (see Monitoring well)<<

Section 2. Section 24-5 of the Code of Miami-Dade County, Florida, is hereby amended to read as follows[1]:

* * *

Sec. 24-5. Same – Duties and powers.

The duties, functions, powers and responsibilities of the Director, Environmental Resources Management, shall include the following:

* * *

(15) (c) The Director [[~~, Environmental Resources Management,~~]] or the Director's designee, may, in the Director's or [[~~his~~]] >>the Director's<< designee's discretion, terminate an investigation or an action commenced under the provisions of this chapter upon execution of a written consent agreement between the Director, or [[~~his~~]] >>the Director's<< designee, and the persons who are the subjects of the investigation or action. The consent agreement shall provide written assurance of voluntary compliance with all the applicable provisions of this chapter by said persons. The consent agreement may, in the discretion of the Director, or [[~~his~~]] >>the Director's<< designee, provide the following: environmental mitigation; compensatory damages; punitive damages; civil penalties; costs and expenses of the County in tracing the source of any discharge, in controlling and abating the source of the pollutants and the pollutants themselves, and in restoring the air, waters,>>ground<< and property, including animal, plant and aquatic life, of the County >>in accordance with the provisions of this chapter<<[[~~to their former condition~~]]; costs of the County for investigation, enforcement, testing, monitoring, and litigation, including attorneys' fees; and remedial or corrective action. An executed written consent agreement shall neither be evidence of a prior violation of this chapter nor shall such agreement be deemed to impose any limitation upon any investigation or action by the Director, or the Director's designee, in the enforcement of this chapter. The consent agreement shall not constitute a waiver of or limitation upon the enforcement of any federal, State or local laws and ordinances. Executed written consent agreements are hereby deemed to be lawful orders of the Director, or the Director's designee. Each violation of any of the terms and conditions of an executed written consent agreement shall constitute a separate offense under this chapter by the person who executed the consent agreement, their respective officers, directors, agents, servants, employees and attorneys; and by those persons in

active concert or participation with any of the foregoing persons and who receive actual notice of the consent agreement. Each day during any portion of which each such violation occurs constitutes a separate offense under this chapter. Decisions and actions of the Director or the Director's designee, pursuant to Section 24-5(15)(c) of this Code and written consent agreements executed thereunder, shall not be subject to review pursuant to Section 24-6 of the Code of [[~~Metropolitan Dade~~]] >>Miami-Dade<< County, Florida.

* * *

Section 3. Section 24-11 of the Code of Miami-Dade County, Florida, is hereby amended to read as follows[1]:

* * *

(5) COMPLIANCE TESTS. Sampling points to determine compliance with Section 24-11>>, except for Section 24-11.1, << shall be selected as follows:

(a) *Effluents.* For compliance with the effluent standards in Section 24-11 (2) and the pretreatment standards in Section 24-11 (9)>>,<< the samples shall be taken at the point past which no further treatment is given by the facility to the waste. An outfall line shall not be considered as further treatment. In facilities which have sand filter beds where the effluent percolates directly into the soil and no approved sampling points are provided, the samples will be taken before the sand filter and a five (5) percent overall reduction of the effluent sewage will be allowed.

* * *

>> (6) SRA COMPLIANCE TESTS. Sampling points to determine compliance with Section 24-11.1 (2) shall be as follows:

(a) Soil. Soil samples shall be collected from locations nearest to the point of entry of a contaminant or contaminants to the ground. Additional sampling points may be required if existing sampling points are determined to be inadequate to establish the extent and degree of contamination in the judgment of the Director or the Director's designee. Sampling point locations and the number of samples required shall be established in accordance with the requirements set forth in Section 24-11.1 (2) (I) (4).

(b) Groundwater. Groundwater samples shall be collected from groundwater monitoring wells nearest to the point of entry of a contaminants or contaminants into the groundwater. Additional test wells may be required to be installed and maintained if existing sampling points are determined to be inadequate to establish the extent and degree of contamination in the judgment of the Director or the Director's designee. Sampling point locations and the number of samples required shall be established in accordance with the requirements set forth in Section 24-11.1 (2) (I) (4).

If surface waters are, or are reasonably expected to be, affected by contaminated groundwater, as demonstrated through groundwater monitoring well data, groundwater flow rate and direction, or fate and transport modeling data, groundwater samples shall be collected from groundwater monitoring wells as close to the groundwater/surface water interface as is physically possible.

(c) Surface Water. Surface water samples shall be collected nearest to and downstream from the point of entry of a contaminant or contaminants into the surface water. Sampling point locations and the number of samples required shall be established in accordance with the requirements set forth in Section 24-11.1 (2) (I) (4).

(d) Sediment. Sediment samples shall be collected nearest to and downstream from the point of entry of a contaminant or contaminants into the surface water. Sampling point locations and the number of samples required shall be established in accordance with the requirements set forth in Section 24-11.1 (2) (I) (4).<<

* * *

Section 4. Section 24-11.1 of the Code of Miami-Dade County, Florida, is hereby created to read as follows[1]:

>>**Section 24-11.1 Clean-up Target Levels (CTLs) and Procedures for Site Rehabilitation Actions (SRAs)**

(1) STATE PROGRAM CONTAMINANT CLEAN-UP TARGET LEVELS (CTLs) AND PROCEDURES.

(A) For contaminants subject to Chapter 62-770, F.A.C., the CTLs and SRA procedures set forth in Chapter 62-777 and 62-770, Florida Administrative Code (F.A.C.) shall apply.

(B) For sites which have entered into a Brownfields Site Rehabilitation Agreement with the Department of Environmental Resources Management or the Florida Department of Environmental Protection pursuant to Chapter 62-785, F.A.C., the CTLs and SRA procedures set forth in Chapter 62-777 and 62-785, F.A.C. shall apply.

(C) For contaminants subject to Chapter 62-782, F.A.C., the CTLs and SRA procedures set forth in Chapter 62-777 and 62-782, F.A.C. shall apply.

(D) For lands owned by the state university system, the risk-based clean-up criteria as described in 376.3071, 376.3078, and 376.81, Florida Statutes, shall apply.

(2) CLEAN-UP TARGET LEVELS (CTLs) AND PROCEDURES FOR SITES OR CONTAMINANTS OTHER THAN THOSE IDENTIFIED IN SECTION 24-11.1 (1)

(A) Intent- To protect human health, public safety and environmental resources using risk-based corrective action strategies and to establish the point at which a site rehabilitation action is determined to be accomplished.

The acceptable level of protection for the establishment of human health based CTLs shall be a lifetime excess cancer risk level of one in one million (1.0E-06) and a hazard quotient of one (1) or less. In addition, the CTLs shall be established to protect aquatic life and to prevent nuisance conditions as applicable.

(B) Applicability - The CTLs set forth in this section are not effluent standards and are not for the purpose of disposal or reuse.

The CTLs and SRA procedures set forth in this section shall not apply to those contaminants that are subject to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986, the Resource Conservation and Recovery Act, the federal Hazardous and Solid Waste Amendments of 1984, or the Toxic Substance Control Act of 1976.

In addition, the soil CTLs set forth in Section 24-11.1 (2) (E) (5) (b) shall not apply to contaminants in soil that are present as a result of the application of registered pesticides that were applied in accordance with state and federal law and the EPA approved applicable registered labels. In making a determination of the applicability of CTLs pursuant to this provision, the party or parties responsible for SRAs shall provide records substantiating such pesticide applications to DERM upon request. Notwithstanding the foregoing provisions of Section 24-11.1 (2) (B), if groundwater contains contaminants above the groundwater CTLs set forth in Section 24-11.1 (2) (E) (5) (a) as a result of the pesticide application, then the CTLs and SRA procedures set forth in Section 24-11.1 (2) shall apply.

(C) Party or parties responsible for site rehabilitation actions shall be the discharger or, if the discharger is unknown or the contamination was the result of a previously unreported discharge, the property owner or operator who is subject to the provisions of Section 24-11.1 (2).

(D) Retroactivity - The CTLs and the SRA procedures set forth herein shall not apply to those contaminants for which, on or before the effective date of this ordinance, a no further action plan, a source removal plan, a remedial action plan or a monitoring only plan has been approved in writing by the Director, or the Director's designee, unless the party or parties responsible for SRAs have failed to comply with the conditions of the plan approval. However, the party or parties responsible for SRAs may elect to complete site rehabilitation as provided in Section 24-11.1 (2).

(E) The Clean-up Target Levels are as follows:

(1) The groundwater and surface water CTLs are set forth in Section 24-11.1 (2) (E) (5) (a). The groundwater CTLs are equivalent to the numerical standards set forth in Section 24-12 (2) (H) of this chapter. For contaminants not listed in Section 24-12 (2) (H), the groundwater CTLs are equivalent to the numerical standards set forth in Chapter 62-550, F.A.C., Table 1, Table 2, Table 3 and Table 4.

For contaminants not listed in Section 24-12 (2) (H) or Chapter 62-550, F.A.C., Table 1, Table 2, Table 3 or Table 4, groundwater CTLs are based upon the protection of human health and the prevention of nuisance conditions as set forth in Section 24-11.1 (2) (A). The groundwater CTLs have been established using the procedures, equations and input parameters set forth in the DERM Technical Report: "Development of Clean-up Target Levels (CTLs) for Chapter 24, Code of Miami-Dade County, Florida" (dated October 20, 2000).

The surface water CTLs are equivalent to the water quality standards set forth in Section 24-11 (4) of this chapter.

For contaminants not listed in Section 24-11 (4), the surface water CTLs are based upon the protection of human health and aquatic life and the prevention of nuisance conditions as set forth in Section 24-11.1 (2) (A). The surface water CTLs have been established using the procedures, equations and input parameters set forth in the DERM Technical Report: "Development of Clean-up Target Levels (CTLs) for Chapter 24, Code of Miami-Dade County, Florida" (dated October 20, 2000) and, as applicable, the numerical standards set forth in Chapter 62-302, F.A.C.

Notwithstanding the foregoing provisions of Section 24-11.1 (2) (E) (1), no groundwater or surface water CTLs shall be more stringent than the practical quantitation limits or naturally occurring background concentrations determined in a natural background concentration study which has been approved by the Director or the Director's designee.

(2) The soil CTLs are set forth in Section 24-11.1 (2) (E) (5) (b). The soil CTLs are based upon the protection of human health as set forth in Section 24-11.1 (2) (A) and groundwater and surface water CTLs set forth in Section 24-11.1 (2) (E) (5) (a). The soil CTLs have been established using the procedures, equations and input parameters set forth in the DERM Technical Report: "Development of Clean-up Target Levels (CTLs) for Chapter 24, Code of Miami-Dade County, Florida" (dated October 20, 2000).

However, the applicable leachability-based soil CTLs may be exceeded if it is demonstrated to the satisfaction of the Director, or the Director's designee, that leachate concentrations do not exceed the applicable groundwater or surface water CTLs set forth in Section 24-11.1 (2) (E) (5) (a), using a laboratory leaching procedure which simulates soil leachability and has been approved by the Director or the Director's designee.

Notwithstanding the foregoing provisions of Section 24-11.1 (2) (E) (2), no soil CTLs shall be more stringent than the practical quantitation limits or naturally occurring background concentrations determined in a natural background concentration study which has been approved by the Director or the Director's designee.

(3) The Director, or the Director's designee, may approve alternative CTLs provided that: human health, public safety, and the environment are afforded equivalent protection to that provided in Section 24-11.1 (2) (E) (1) and Section 24-11.1 (2) (E) (2); a copy of the FDEP exemption order pursuant to Section 120.542, Florida Statutes is submitted, if applicable; and same are based upon one of the following, or a combination of the following:

(a) The application of the procedures set forth in Section 24-11.1 (2) (J) (2) or Section 24-11.1 (2) (K) (2).
(b) A demonstration, provided in a feasibility study approved by the Director, or the Director's designee, that achieving the CTLs is not feasible utilizing the best available technologies.
(c) Calculations of site-specific soil CTLs using appropriate site-specific soil properties and equations provided in the DERM Technical Report: "Development of Clean-up Target Levels (CTLs) for Chapter 24, Code of Miami-Dade County, Florida" (dated October 20, 2000), and approved by the Director or the Director's designee.

(d) Calculations of site-specific soil CTLs for total recoverable petroleum hydrocarbons (TRPH) based upon the site-specific composition of TRPH, as determined by an analytical method approved by the Director or the Director's designee. Calculations utilized to comply with this provision shall be in accordance with the DERM Technical Report: "Development of Clean-up Target Levels (CTLs) for Chapter 24, Code of Miami-Dade County, Florida " (dated October 20, 2000).

(4) The Director, or the Director's designee, shall maintain the DERM Technical Report: "Development of Clean-up Target Levels for Chapter 24, Code of Miami-Dade County, Florida " (dated October 20, 2000) which contains the risk equations, leachability equations and default input parameters used to calculate the CTLs set forth in Section 24-11.1 (2) (E) (5) herein. The aforesaid Technical Report dated October 20, 2000, a copy of which is attached hereto, is hereby incorporated by reference, as same may be amended from time to time. Any changes, additions or deletions to the aforesaid Technical Report shall be approved by the Board of County Commissioners by ordinance.

(5) Clean-up Target Levels (CTLs)

(a) Groundwater and Surface Water CTLs

Table 1
Groundwater and Surface Water Clean-up Target levels

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Acenaphthene	83-32-9	20	3	3	-Liver
Acenaphthylene	208-96-8	210	0.031	0.031	-Body Weight -Liver
Acephate	30560-19-1	2.8	190	190	-Carcinogen -Neurological
Acetone	67-64-1	700	1692	1692	-Kidney -Liver -Neurological
Acetonitrile	75-05-8	42	19983	19983	-Blood -Liver
Acetophenone	98-86-2	700	7750	7750	-None Specified
Acifluorfen, sodium [or Blazer]	62476-59-9	1	190	190	-Kidney -Mortality
Acrolein	107-02-8	14	0.4	0.4	-Nasal
Acrylamide	79-06-1	0.008	5.98	5.98	-Carcinogen -Neurological
Acrylonitrile	107-13-1	0.06	49.9	49.9	-Carcinogen -Nasal -Reproductive
Alachlor	15972-60-8	2	0.596	0.596	-Blood -Carcinogen
Aldicarb [or Temik]	116-06-3	7	0.85	0.85	-Neurological
Aldicarb sulfone	1646-88-4	7	46	46	-Neurological
Aldrin	309-00-2	0.002	0.00014	0.00014	-Carcinogen -Liver
Allyl alcohol	107-18-6	35	5	5	-Kidney -Liver
Allyl chloride	107-05-1	35	NA	NA	-Neurological
Aluminum	7429-90-5	200	13	13	-Body Weight
Aluminum phosphide	20859-73-8	2.8	6.5	6.5	-Body Weight
Ametryn	834-12-8	63	6.2	6.2	-Liver
Ammonia	7664-41-7	NA	20	NA	-Respiratory
Ammonia (as total)	7664-41-7	2800	500	500	-Respiratory
Aniline	62-53-3	6.1	4	4	-Blood -Carcinogen
Anthracene	120-12-7	2100	0.3	0.3	-None Specified
Antimony	7440-36-0	6	4300	4300	-Blood -Mortality
Aramite	140-57-8	NA	3	3	-Carcinogen -Liver
Arsenic	7440-38-2	10	50	50	-Carcinogen -Cardiovascular -Skin
Atrazine	1912-24-9	3	1.8	1.8	-Body Weight -Carcinogen
Azobenzene	103-33-3	0.3	0.559	0.559	-Carcinogen
Barium	7440-39-3	2000	b	b	-Cardiovascular
Bayleton	43121-43-3	210	500	500	-Blood -Body Weight
Benomyl	17804-35-2	35	0.3	0.3	-Developmental
Bentazon	25057-89-0	210	NA	NA	-Blood
Benzaldehyde	100-52-7	700	53.5	53.5	-Gastrointestinal -Kidney
Benzene	71-43-2	1	71.28	71.28	-Carcinogen
Benzenethiol	108-98-5	0.07	NA	NA	-Liver
Benzo(a)anthracene	56-55-3	0.05	0.031	0.031	-Carcinogen
Benzo(a)pyrene	50-32-8	0.2	0.031	0.031	-Carcinogen
Benzo(b)fluoranthene	205-99-2	0.05	0.031	0.031	-Carcinogen
Benzo(g,h,i)perylene	191-24-2	210	0.031	0.031	-Neurological

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Benzo(k)fluoranthene	207-08-9	0.5	0.031	0.031	-Carcinogen
Benzoic acid	65-85-0	28000	9000	9000	-None Specified
Benzotrichloride	98-08-7	0.003	0.0029	0.0029	-Carcinogen
Benzyl alcohol	100-51-6	2100	500	500	-Gastrointestinal
Benzyl chloride	100-44-7	0.2	2.95	2.95	-Carcinogen
Beryllium	7440-41-7	4	0.13	0.13	-Carcinogen -Gastrointestinal -Respiratory
Bidrin [or Dicrotophos]	141-66-2	0.7	21.5	21.5	-Developmental
Biphenyl, 1,1- [or Diphenyl]	92-52-4	0.5	18	18	-Kidney
Bis(2-chloroethyl)ether	111-44-4	0.03	9.99	9.99	-Carcinogen
Bis(2-chloroisopropyl)ether	108-60-1	0.5	0.5	0.5	-Blood -Carcinogen
Bis(2-ethylhexyl)phthalate [or DEHP]	117-81-7	6	0.02	0.02	-Carcinogen -Liver
Bisphenol A	80-05-7	350	55	55	-Body Weight
Boron	7440-42-8	630	NA	NA	-Reproductive -Respiratory
Bromacil	314-40-9	91	97	97	-Body Weight
Bromochloromethane	74-97-5	91	NA	NA	-None Specified
Bromodichloromethane	75-27-4	0.6	22	22	-Carcinogen -Kidney
Bromoform	75-25-2	4.4	360	360	-Carcinogen -Liver
Bromomethane [or Methyl bromide]	74-83-9	9.8	35	35	-Gastrointestinal
Bromoxynil	1689-84-5	140	NA	NA	-None Specified
Bromoxynil octanoate	1689-99-2	140	NA	NA	-None Specified
Butanol, 1-	71-36-3	700	25000	25000	-Neurological
Butanone, 2- [or MEK]	78-93-3	4200	120000	120000	-Developmental
Butyl benzyl phthalate, n-	85-68-7	140	25.5	25.5	-Liver
Butylate	2008-41-5	350	10.5	10.5	-Liver
Butylphthalyl butylglycolate	85-70-1	7000	NA	NA	-None Specified
Cacodylic acid (as Arsenic)	75-60-5	21	850	850	-None Specified
Cadmium	7440-43-9	5	a	9.3	-Carcinogen -Kidney
Calcium cyanide	592-01-8	280	NA	NA	-Body Weight -Neurological -Thyroid
Captafol	2425-06-1	NA	0.85	0.85	-Kidney
Captan	133-06-2	10	1.9	1.9	-Body Weight -Carcinogen
Carbaryl [or Sevin]	63-25-2	700	0.06	0.06	-Kidney -Liver
Carbazole	86-74-8	1.8	46.5	46.5	-Carcinogen
Carbofuran	1563-66-2	40	0.1	0.1	-Neurological -Reproductive
Carbon disulfide	75-15-0	700	105	105	-Developmental -Neurological
Carbon tetrachloride	56-23-5	3	4.42	4.42	-Carcinogen -Liver
Carbophenothion [or Trithion]	786-19-6	0.9	0.1	0.1	-Neurological
Carboxin	5234-68-4	700	60	60	-Body Weight
Chloral	75-87-6	14	NA	NA	-Liver
Chloramben	133-90-4	110	NA	NA	-Liver
Chlordane	57-74-9	2	0.00059	0.00059	-Carcinogen -Liver
Chloride	16887-00-6	250000	500000 b	b	-None Specified
Chlorine	7782-50-5	700	10	10	-Body Weight
Chlorine cyanide [or Cyanogen chloride]	506-77-4	350	1.45	1.45	-Body Weight -Neurological -Thyroid

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Chlorite, sodium	7758-19-2	21	29	29	-None Specified
Chloro-1,3-butadiene [or Chloroprene]	126-99-8	140	NA	NA	-Body Weight -Hair Loss -Nasal
Chloroacetic acid	79-11-8	14	NA	NA	-Cardiovascular
Chloroaniline, 4-	106-47-8	28	2.5	2.5	-Spleen
Chlorobenzene	108-90-7	100	17	17	-Liver
Chlorobenzilate	510-15-6	0.1	0.09	0.09	-Body Weight -Carcinogen
Chloroethane [or Ethyl chloride]	75-00-3	12	NA	NA	-Carcinogen -Developmental
Chloroform	67-66-3	5.7	470.8	470.8	-Carcinogen -Liver
Chloro-m-cresol, p- [or 4-chloro-3-methylphenol]	59-50-7	63	100	100	-Body Weight
Chloromethane	74-87-3	2.7	470.8	470.8	-Carcinogen
Chloronaphthalene, beta-	91-58-7	560	NA	NA	-Liver -Respiratory
Chloronitrobenzene, p-	100-00-5	1.9	107	107	-Carcinogen
Chlorophenol, 2-	95-57-8	35	130	130	-Reproductive
Chlorophenol, 3-	108-43-0	10	173.5	173.5	-None Specified
Chlorophenol, 4-	106-48-9	5.5	175	175	-None Specified
Chlorothalonil [or Bravo]	1897-45-6	3.2	0.8	0.8	-Carcinogen -Kidney
Chlorotoluene, o-	95-49-8	140	390	390	-Body Weight
Chlorotoluene, p-	106-43-4	140	NA	NA	-None Specified
Chlorpropham	101-21-3	1400	190	190	-Bone Marrow -Kidney -Liver -Spleen
Chlorpyrifos	2921-88-2	21	0.002	0.002	-Neurological
Chlorpyrifos, methyl	5598-13-0	70	0.035	0.035	-Reproductive
Chlorsulfuron	64902-72-3	350	16	16	-Body Weight
Chromium (total)	NOCAS#	100	50	50	-Carcinogen
Chrysene	218-01-9	4.8	0.031	0.031	-Carcinogen
Cobalt	7440-48-4	420	NA	NA	-Cardiovascular -Immunological -Neurological -
Copper	7440-50-8	1000	a	2.9	-Gastrointestinal
Coumaphos	56-72-4	1.8	0.004	0.004	-Neurological
Crotonaldehyde	123-73-9	4000	NA	NA	-Carcinogen
Cumene [or Isopropyl benzene]	98-82-8	0.8	255	255	-Adrenals -Kidney
Cyanazine	21725-46-2	NA	5.5	5.5	-Carcinogen
Cyanide	57-12-5	140	5.2	1	-Body Weight -Neurological -Thyroid
Cyanogen	460-19-5	280	NA	NA	-None Specified
Cycloate	1134-23-2	35	130	130	-Neurological
Cyclohexanone	108-94-1	35000	26350	26350	-Body Weight
Cypermethrin	52315-07-8	7	0.0005	0.0005	-Gastrointestinal
Dacthal [or DCPA]	1861-32-1	70	310	310	-Kidney -Liver -Respiratory -Thyroid
Dalapon	75-99-0	200	5000	5000	-Kidney
DDD, 4,4'-	72-54-8	0.1	0.003	0.003	-Carcinogen
DDE, 4,4'-	72-55-9	0.1	0.0006	0.0006	-Carcinogen
DDT, 4,4'-	50-29-3	0.1	0.00059	0.00059	-Carcinogen -Liver
Demeton	8065-48-3	0.3	0.1	0.1	-Eye -Neurological
Diallate	2303-16-4	0.6	NA	NA	-Carcinogen
Diazinon	333-41-5	0.6	0.002	0.002	-Neurological

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Dibenz(a,h)anthracene	53-70-3	0.005	0.031	0.031	-Carcinogen
Dibenzofuran	132-64-9	28	67	67	-None Specified
Dibromo-3-chloropropane, 1-2- [or DBCP]	96-12-8	0.2	NA	NA	-Carcinogen -Reproductive
Dibromochloromethane	124-48-1	0.4	34	34	-Carcinogen -Liver
Dibromoethane, 1,2- [or EDB]	106-93-4	0.02	13	13	-Carcinogen -Reproductive
Dibutyl phthalate	84-74-2	700	23	23	-Mortality
Dicamba	1918-00-9	210	195	195	-Developmental
Dichloroacetic acid	79-43-6	28	1150	1150	-None Specified
Dichloroacetonitrile	3018-12-0	5.6	NA	NA	-None Specified
Dichlorobenzene, 1,2-	95-50-1	600	99	99	-Body Weight
Dichlorobenzene, 1,3-	541-73-1	10	85	85	-None Specified
Dichlorobenzene, 1,4-	106-46-7	75	100	100	-Carcinogen -Liver
Dichlorobenzidine, 3,3'-	91-94-1	0.08	0.06	0.06	-Carcinogen
Dichlorodifluoromethane	75-71-8	1400	NA	NA	-Body Weight -Liver
Dichloroethane, 1,1-	75-34-3	70	NA	NA	-Kidney
Dichloroethane, 1,2- [or EDC]	107-06-2	3	5	5	-Carcinogen
Dichloroethene, 1,1-	75-35-4	7	3.2	3.2	-Carcinogen -Liver
Dichloroethene, cis-1,2-	156-59-2	70	NA	NA	-Blood
Dichloroethene, trans-1,2-	156-60-5	100	11000	11000	-Blood -Liver
Dichlorophenol, 2,3-	576-24-9	21	56	56	-None Specified
Dichlorophenol, 2,4-	120-83-2	21	13	13	-Immunological
Dichlorophenol, 2,5-	583-78-8	21	90	90	-None Specified
Dichlorophenol, 2,6-	87-65-0	21	73	73	-None Specified
Dichlorophenol, 3,4-	95-77-2	21	61	61	-None Specified
Dichlorophenoxy acetic acid, 2,4-	94-75-7	70	80	80	-Kidney -Liver
Dichlorophenoxy butyric acid, 2,4- [or 2,4-DB]	94-82-6	56	NA	NA	-Blood -Cardiovascular
Dichloropropane, 1,2-	78-87-5	5	2600	2600	-Carcinogen -Nasal
Dichloropropene, 1,3-	542-75-6	0.2	12	12	-Carcinogen -Kidney -Nasal
Dichlorprop	120-36-5	35	42	42	-None Specified
Dichlorvos	62-73-7	0.1	0.005	0.005	-Carcinogen -Neurological
Dicofol [or Kelthane]	115-32-2	0.08	0.003	0.003	-Adrenals -Carcinogen
Dieldrin	60-57-1	0.002	0.00014	0.00014	-Carcinogen -Liver
Diethylphthalate	84-66-2	5600	380	380	-Body Weight
Dimethoate	60-51-5	0.1	0.1	0.1	-Neurological
Dimethrin	70-38-2	2100	1.1	1.1	-Liver
Dimethylformamide, N,N-	68-12-2	700	50000	50000	-Gastrointestinal -Liver
Dimethylphenol, 2,4-	105-67-9	140	261	261	-Blood -Neurological
Dimethylphthalate	131-11-3	70000	1450	1450	-Kidney
Dinitrobenzene, 1,2- (o)	528-29-0	2.8	30	30	-Spleen
Dinitrobenzene, 1,3- (m)	99-65-0	0.7	72	72	-Spleen
Dinitrophenol, 2,4-	51-28-5	14	3	3	-Eye
Dinitrotoluene, 2,4-	121-14-2	0.05	9.1	9.1	-Carcinogen -Liver -Neurological
Dinitrotoluene, 2,6-	606-20-2	0.05	4	4	-Blood -Carcinogen -Kidney -Mortality -Neurological

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Di-n-octylphthalate	117-84-0	140	NA	NA	-Kidney -Liver
Dinoseb	88-85-7	7	5.9	5.9	-Developmental
Dioxane, 1,4-	123-91-1	3.2	245	245	-Carcinogen
Dioxin [or 2,3,7,8-TCDD]	1746-01-6	0.00003	0.000000013	0.000000013	-Carcinogen
Diphenamid	957-51-7	210	1600	1600	-Liver
Diphenylamine, N,N-	122-39-4	180	NA	NA	-Body Weight -Kidney -Liver
Diphenylhydrazine, 1,2-	122-66-7	0.04	0.38	0.38	-Carcinogen
Diquat	85-00-7	20	1.5	1.5	-Eye
Disulfoton	298-04-4	0.3	0.3	0.3	-Neurological
Diuron	330-54-1	14	8	8	-Blood
Endosulfan	115-29-7	42	0.056	0.0087	-Body Weight -Cardiovascular -Kidney
Endothall	145-73-3	100	105	105	-Gastrointestinal
Endrin	72-20-8	2	0.0023	0.0023	-Liver
Epichlorohydrin	106-89-8	3.5	272	272	-Carcinogen -Kidney -Nasal
Ethion	563-12-2	3.5	0.007	0.007	-Neurological
Ethoprop	13194-48-4	0.7	0.315	0.315	-Neurological
Ethoxyethanol, 2-	110-80-5	2800	NA	NA	-Body Weight -Reproductive
Ethyl acetate	141-78-6	6300	6250	6250	-Body Weight -Mortality
Ethyl acrylate	140-88-5	0.7	125	125	-Carcinogen
Ethyl dipropylthiocarbamate, S- [or EPTC]	759-94-4	180	235	235	-Cardiovascular
Ethyl ether	60-29-7	750	128000	128000	-Body Weight
Ethyl methacrylate	97-63-2	630	NA	NA	-Kidney
Ethyl p-nitrophenyl phenylphosphorothioate [or EPN]	2104-64-5	0.07	0.015	0.015	-Neurological
Ethylbenzene	100-41-4	30	605	605	-Developmental -Kidney -Liver
Ethylene diamine	107-15-3	140	800	800	-Blood -Cardiovascular
Ethylene glycol	107-21-1	14000	16300	16300	-Kidney
Ethylene oxide	75-21-8	0.03	4200	4200	-Carcinogen
Ethylphthalyl ethylglycolate [or EPEG]	84-72-0	21000	NA	NA	-Kidney
Fenamiphos	22224-92-6	1.8	0.225	0.225	-Neurological
Fensulfothion	115-90-2	1.8	0.5	0.5	-Neurological
Fluometuron	2164-17-2	91	190	190	-None Specified
Fluoranthene	206-44-0	280	0.3	0.3	-Blood -Kidney -Liver
Fluorene	86-73-7	280	30	30	-Blood
Fluoride	7782-41-4	2000	1400	5000	-Teeth
Fluoridone	59756-60-4	560	105	105	-Body Weight -Eye -Kidney -Reproductive
Fonofos	944-22-9	14	0.095	0.095	-Liver -Neurological
Formaldehyde	50-00-0	600	105	105	-Body Weight -Carcinogen -Gastrointestinal
Formic acid	64-18-6	14000	4500	4500	-Body Weight
Furfural	98-01-1	21	650	650	-Liver -Nasal
Glyphosate [or Roundup]	1071-83-6	700	115	115	-Developmental -Kidney
Guthion [or Azinphos, methyl]	86-50-0	11	0.01	0.01	-Neurological
Heptachlor	76-44-8	0.4	0.0021	0.0021	-Carcinogen -Liver
Heptachlor epoxide	1024-57-3	0.2	0.002	0.002	-Carcinogen -Liver

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Hexachloro-1,3-butadiene	87-68-3	0.5	49.7	49.7	-Carcinogen -Kidney
Hexachlorobenzene	118-74-1	1	0.00036	0.00036	-Carcinogen -Liver
Hexachlorocyclohexane [technical or BHC]	608-73-1	0.02	0.017	0.017	-Carcinogen
Hexachlorocyclohexane, alpha-	319-84-6	0.006	0.0116	0.0116	-Carcinogen
Hexachlorocyclohexane, beta-	319-85-7	0.02	0.046	0.046	-Carcinogen
Hexachlorocyclohexane, delta-	319-86-8	2.1	NA	NA	-Kidney -Liver
Hexachlorocyclohexane, gamma- [or Lindane]	58-89-9	0.2	0.063	0.063	-Carcinogen -Kidney -Liver
Hexachlorocyclopentadiene	77-47-4	50	2.95	2.95	-Gastrointestinal
Hexachloroethane	67-72-1	2.5	1.1	1.1	-Carcinogen -Kidney
Hexahydro-1,3,5-trinitro-1,3,5-triazine [or RDX]	121-82-4	0.3	180	180	-Carcinogen -Reproductive
Hexane, n-	110-54-3	420	3400	3400	-Neurological
Hexanone, 2- [or Methyl butyl ketone]	591-78-6	280	NA	NA	-None Specified
Hexazinone	51235-04-2	230	1020	1020	-Body Weight
Hydrogen cyanide (as Cyanide)	74-90-8	140	3.45	3.45	-Body Weight -Neurological -Thyroid
Hydroquinone	123-31-9	280	4.5	4.5	-Blood
Indeno(1,2,3-cd)pyrene	193-39-5	0.05	0.031	0.031	-Carcinogen
Iron	7439-89-6	300	300	300	-Blood -Gastrointestinal
Isobutyl alcohol	78-83-1	2100	47450	47450	-Neurological
Isophorone	78-59-1	37	645	645	-Carcinogen
Lead	7439-92-1	15	a	5.6	-Neurological
Linuron	330-55-2	1.4	44.5	44.5	-Blood
Lithium	7439-93-32	140	NA	NA	-None Specified
Malathion	121-75-5	140	0.1	0.1	-Neurological
Mancozeb	8018-01-7	210	3.5	3.5	-Thyroid
Maneb	12427-38-2	35	5.5	5.5	-Thyroid
Manganese	7439-96-5	50	NA	NA	-Neurological
Mercuric chloride (as Mercury)	7487-94-7	0.2	0.05	0.05	-Immunological -Kidney
Mercury	7439-97-6	2	0.012	0.012	-Neurological
Mercury, methyl	22967-92-6	0.07	NA	NA	-Neurological
Merphos	150-50-5	0.2	NA	NA	-Body Weight -Neurological
Metalaxyl	57837-19-1	420	36.5	36.5	-Liver
Methacrylonitrile	126-98-7	0.7	NA	NA	-Liver
Methamidophos	10265-92-6	0.4	0.000011	0.000011	-Neurological
Methanol	67-56-1	3500	45037	45037	-Liver -Neurological
Methidathion	950-37-8	0.7	0.03	0.03	-Liver
Methomyl	16752-77-5	180	0.95	0.95	-Kidney -Spleen
Methoxy-5-nitroaniline, 2-	99-59-2	0.8	NA	NA	-Carcinogen
Methoxychlor	72-43-5	40	0.03	0.03	-Developmental -Reproductive
Methoxyethanol, 2-	109-86-4	40	NA	NA	-Reproductive
Methyl acetate	79-20-9	7000	NA	NA	-Liver
Methyl acrylate	96-33-3	210	NA	NA	-None Specified
Methyl isobutyl ketone [or MIBK]	108-10-1	560	23000	23000	-Kidney -Liver
Methyl methacrylate	80-62-6	25	6500	6500	-Nasal

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Methyl parathion [or Parathion, methyl]	298-00-0	1.8	0.01	0.01	-Blood -Neurological
Methyl tert-butyl ether [or MTBE]	1634-04-4	50	33600	33600	-Eye -Kidney -Liver
Methyl-4-chlorophenoxy acetic acid, 2-	94-74-6	3.5	72	72	-Kidney -Liver
Methylaniline, 2-	95-53-4	0.1	26	26	-Carcinogen
Methylene bis(2-chloroaniline), 4,4-	101-14-4	0.3	NA	NA	-Carcinogen -Liver -Bladder
Methylene bromide	74-95-3	70	NA	NA	-Blood
Methylene chloride	75-09-2	5	1580	1580	-Carcinogen -Liver
Methylnaphthalene, 1-	90-12-0	20	95	95	-Body Weight -Nasal
Methylnaphthalene, 2-	91-57-6	20	30	30	-Body Weight -Nasal
Methylphenol, 2- [or o-Cresol]	95-48-7	35	250	250	-Body Weight -Neurological
Methylphenol, 3- [or m-Cresol]	108-39-4	35	445	445	-Body Weight -Neurological
Methylphenol, 4- [or p-Cresol]	106-44-5	3.5	70	70	-Maternal Death -Neurological -Respiratory
Metolachlor	51218-45-2	110	1.08	1.08	-Body Weight
Metribuzin	21087-64-9	180	64	64	-Body Weight -Kidney -Liver -Mortality
Metsulfuron, methyl [or Ally]	74223-64-6	1800	NA	NA	-Body Weight
Mevinphos	7786-34-7	1.8	0.0475	0.0475	-Neurological
Mirex	2385-85-5	1.4	0.001	0.001	-Liver -Thyroid
Molinate	2212-67-1	14	17	17	-Reproductive
Molybdenum	7439-98-7	35	NA	NA	-Gout
Naled	300-76-5	14	0.018	0.018	-Neurological
Naphthalene	91-20-3	20	26	26	-Body Weight -Nasal
Napropamide	15299-99-7	700	210	210	-Body Weight
Nickel	7440-02-0	100	a	8.3	-Body Weight
Nitrate	14797-55-8	10000	b	b	-Blood
Nitrate+Nitrite	NOCAS#	10000	b	b	-Blood
Nitrite	14797-65-0	1000	b	b	-Blood
Nitrobenzene	98-95-3	3.5	90	90	-Adrenals -Blood -Kidney -Liver
Nitrophenol, 4-	100-02-7	56	55	55	-None Specified
Nitroso-diethylamine, N-	55-18-5	0.0002	0.18	0.18	-Carcinogen
Nitroso-dimethylamine, N-	62-75-9	0.0007	0.53	0.53	-Carcinogen
Nitroso-di-n-butylamine, N-	924-16-3	0.006	0.16	0.16	-Carcinogen
Nitroso-di-n-propylamine, N-	621-64-7	0.005	0.83	0.83	-Carcinogen
Nitroso-diphenylamine, N-	86-30-6	7.1	44	44	-Carcinogen
Nitroso-N-methylethylamine, N-	10595-95-6	0.002	1.22	1.22	-Carcinogen
Nitrotoluene, m-	99-08-1	70	375	375	-Spleen
Nitrotoluene, o-	88-72-2	70	550	550	-Spleen
Nitrotoluene, p-	99-99-0	70	550	550	-Spleen
Norflurazon	27314-13-2	280	NA	NA	-Liver -Thyroid
Octahydro-1,3,5,7-tetranitro-tetrazocine [or HMX]	2691-41-0	350	1250	1250	-Liver
Octamethylpyrophosphoramide	152-16-9	14	NA	NA	-Neurological
Oryzalin	19044-88-3	350	NA	NA	-Kidney -Liver
Oxadiazon	19666-30-9	35	44	44	-Liver
Oxamyl	23135-22-0	200	8.5	8.5	-Body Weight

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Paraquat	1910-42-5	32	47	47	-Respiratory
Parathion	56-38-2	42	0.04	0.04	-Neurological
PCBs [Aroclor miture]	1336-36-3	0.5	0.000045	0.000045	-Carcinogen -Immunological
Pebulate	1114-71-2	350	305	305	-Blood
Pendimethalin	40487-42-1	280	10	10	-Liver
Pentachlorobenzene	608-93-5	5.6	1.7	1.7	-Kidney -Liver
Pentachloronitrobenzene	82-68-8	0.1	0.04	0.04	-Carcinogen -Liver
Pentachlorophenol	87-86-5	1	8.2	7.9	-Carcinogen -Kidney -Liver
Permethrin	52645-53-1	350	0.001	0.001	-Liver
Phenanthrene	85-01-8	210	0.031	0.031	-Kidney
Phenol	108-95-2	1	1	5	-Developmental
Phenylenediamine, p-	106-50-3	1300	NA	NA	-Whole Body
Phenylphenol, 2-	90-43-7	18	35.5	35.5	-Carcinogen
Phorate	298-02-2	1.4	0.0055	0.0055	-Neurological
Phosmet	732-11-6	140	0.1	0.1	-Body Weight -Liver -Neurological
Phthalic anhydride	85-44-9	14000	NA	NA	-Kidney -Nasal -Respiratory
Picloram	1918-02-1	500	70	70	-Liver
Potassium cyanide	151-50-8	350	5.5	5.5	-Body Weight -Neurological -Thyroid
Profluralin	26399-36-0	42	NA	NA	-None Specified
Prometon	1610-18-0	110	600	600	-None Specified
Prometryn	7287-19-6	28	21	21	-Bone Marrow -Kidney -Liver
Pronamide	23950-58-5	53	NA	NA	-None Specified
Propachlor	1918-16-7	91	11.5	11.5	-Body Weight -Liver
Propanil	709-98-8	35	20	20	-Spleen
Propargite	2312-35-8	140	1.55	1.55	-None Specified
Propazine	139-40-2	14	185	185	-Body Weight
Propham	122-42-9	140	500	500	-Neurological -Spleen
Propiconazole	60207-90-1	90	25.5	25.5	-Gastrointestinal
Propoxur [or Baygon]	114-26-1	2.8	0.35	0.35	-Neurological
Propylene glycol	57-55-6	140000	35500	35500	-Blood -Bone Marrow
Propylene oxide	75-56-9	0.1	NA	NA	-Carcinogen -Nasal -Respiratory
Pydrin [or Fenvalerate]	51630-58-1	1800	0.00035	0.00035	-Neurological
Pyrene	129-00-0	210	0.3	0.3	-Kidney
Pyridine	110-86-1	7	1300	1300	-Liver
Resmethrin	10453-86-8	210	0.0026	0.0026	-Reproductive
Ronnel	299-84-3	350	0.061	0.061	-Liver
Rotenone	83-79-4	28	0.115	0.115	-Body Weight -Developmental
Selenious acid (as Selenium)	7783-00-8	35	40	40	-Hair Loss -Neurological -Skin
Selenium	7782-49-2	50	5	71	-Hair Loss -Neurological -Skin
Silver	7440-22-4	100	0.07	0.35	-Skin
Simazine	122-34-9	4	5.8	5.8	-Blood -Body Weight -Carcinogen
Sodium	7440-23-5	160000	c	NA	-None Specified
Sodium cyanide (as Cyanide)	143-33-9	280	3.79	3.79	-Body Weight -Neurological -Thyroid

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Strontium	7440-24-6	4200	NA	NA	-Bone
Strychnine	57-24-9	2.1	38	38	-Mortality
Styrene	100-42-5	100	455	455	-Blood -Liver -Neurological
Sulfate	14808-79-8	250000	b	b	-None Specified
Tebuthiuron	34014-18-1	490	307	307	-Body Weight
Temephos	3383-96-8	140	0.002	0.002	-None Specified
Terbacil	5902-51-2	91	2450	2450	-Liver -Thyroid
Terbufos	13071-79-9	0.2	0.01	0.01	-Neurological
Tetrachlorobenzene, 1,2,4,5-	95-94-3	2.1	2.3	2.3	-Kidney
Tetrachloroethane, 1,1,1,2-	630-20-6	1.3	NA	NA	-Carcinogen -Kidney -Liver
Tetrachloroethane, 1,1,2,2-	79-34-5	0.2	10.8	10.8	-Carcinogen
Tetrachloroethene [or PCE]	127-18-4	3	8.85	8.85	-Body Weight -Carcinogen -Liver
Tetrachlorophenol, 2,3,4,6-	58-90-2	210	4.5	4.5	-Liver
Tetraethyl dithiopyrophosphate	3689-24-5	3.5	0.0115	0.0115	-Bone Marrow -Neurological
Thallium	7440-28-0	2	6.3	6.3	-Liver
Thiocyanomethylthio-benzothiazole, 2-	21564-17-0	210	0.435	0.435	-Gastrointestinal
Thiram	137-26-8	35	0.168	0.168	-Neurological
Tin	7440-31-5	4200	NA	NA	-Kidney -Liver
Toluene	108-88-3	40	475	475	-Kidney -Liver -Neurological
Toluidine, p-	106-49-0	0.2	NA	NA	-Carcinogen
Total dissolved solids [or TDS]	C-010	500000	NA	NA	-None Specified
Toxaphene	8001-35-2	3	0.0002	0.0002	-Carcinogen -Developmental
Triallate	2303-17-5	91	65	65	-Liver -Spleen
Tributyltin oxide	56-35-9	2.1	0.05	0.05	-Immunological
Trichloro-1,2,2-trifluoroethane, 1,1,2- [or CFC 113]	76-13-1	210000	NA	NA	-Body Weight -Neurological
Trichloroacetic acid	76-03-9	300	100000	100000	-None Specified
Trichlorobenzene, 1,2,3-	87-61-6	70	85	85	-Adrenals -Body Weight
Trichlorobenzene, 1,2,4-	120-82-1	70	22.5	22.5	-Adrenals -Body Weight
Trichlorobenzene, 1,3,5-	108-70-3	40	NA	NA	-None Specified
Trichloroethane, 1,1,1- [or Methyl chloroform]	71-55-6	200	270	270	-None Specified
Trichloroethane, 1,1,2-	79-00-5	5	28.5	28.5	-Carcinogen -Liver
Trichloroethene [or TCE]	79-01-6	3	80.7	80.7	-Carcinogen
Trichlorofluoromethane	75-69-4	2100	NA	NA	-Cardiovascular -Kidney -Mortality -Respiratory
Trichlorophenol, 2,4,5-	95-95-4	4	22.5	22.5	-Kidney -Liver
Trichlorophenol, 2,4,6-	88-06-2	3.2	6.5	6.5	-Carcinogen
Trichlorophenoxy acetic acid, 2,4,5-	93-76-5	70	145	145	-Kidney
Trichlorophenoxy propionic acid [or Silvex]	93-72-1	50	NA	NA	-Liver
Trichloropropane, 1,2,3-	96-18-4	0.005	0.26	0.26	-Body Weight -Carcinogen -Kidney -Liver -Mortality
Trifluralin	1582-09-8	4.5	0.78	0.78	-Blood -Carcinogen -Liver
Trimethyl phosphate	512-56-1	0.9	NA	NA	-Carcinogen
Trimethylbenzene, 1,2,3-	526-73-8	10	NA	NA	-None Specified
Trimethylbenzene, 1,2,4-	95-63-6	10	217.5	217.5	-None Specified
Trimethylbenzene, 1,3,5-	108-67-8	10	215	215	-None Specified

Contaminant	CAS #	A Groundwater Criteria (ug/L)	B Freshwater Surface Water Criteria (ug/L)	C Marine Surface Water Criteria (ug/L)	Target Organ/System or Effect
Trinitrobenzene, 1,3,5-	99-35-4	210	19	19	-Blood -Spleen
Trinitrotoluene, 2,4,6-	118-96-7	0.4	49	49	-Carcinogen -Liver
TRPH	NOCAS#	5000 #	5000 #	5000 #	-Multiple Endpoints Mixed Contaminants
Uranium, natural	7440-61-1	21	NA	NA	-None Specified
Vanadium	7440-62-2	49	NA	NA	-None Specified
Vernam	1929-77-7	7	11.5	11.5	-Body Weight
Vinyl acetate	108-05-4	88	700	700	-Body Weight -Kidney -Nasal
Vinyl chloride	75-01-4	1	NA	NA	-Carcinogen
Xylenes, total	1330-20-7	20	370	370	-Body Weight -Mortality -Neurological
Zinc	7440-66-6	5000	a	86	-Blood
Zinc phosphide	1314-84-7	2.1	NA	NA	-Body Weight
Zineb	12122-67-7	350	13.5	13.5	-Thyroid

a = Hardness-dependent per Chapter 62-302, F.A.C.

b = Not greater than 10% above background.

c = Shall not be increased more than 50% above background or to 1275 ug/L, whichever is greater (per Chapter 62-302, F.A.C.).

= Based upon similarity to oil and grease standard as provided in Chapter 62-302, F.A.C.

NA = Not Available.

CAS # = Chemical Abstract Service registry number.

(b) Soil CTLs

Table 2
Soil Clean-up Target Levels

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Acenaphthene	83-32-9	2400	20000	2.1	0.7	0.7	-Liver
Acenaphthylene	208-96-8	1800	20000	27	0.7	0.7	-Body Weight -Liver
Acephate	30560-19-1	83	240	0.01	0.8	0.8	-Carcinogen -Neurological
Acetone	67-64-1	1300	7500	2.8	6.8	6.8	-Kidney -Liver -Neurological
Acetonitrile	75-05-8	170	1200	0.2	80	80	-Blood -Liver
Acetophenone	98-86-2	3900 #	32000	3.9	44	44	-None Specified
Acrolein	107-02-8	0.05	0.3	0.06	0.002	0.002	-Nasal
Acrylamide	79-06-1	0.1	0.4	0.00003	0.02	0.02	-Carcinogen -Neurological
Acrylonitrile	107-13-1	0.3	0.6	0.0003	0.2	0.2	-Carcinogen -Nasal -Reproductive
Alachlor	15972-60-8	11	46	0.02	0.006	0.006	-Blood -Carcinogen
Aldicarb [or Temik]	116-06-3	66	860	0.03	0.004	0.004	-Neurological
Aldrin	309-00-2	0.06	0.3	0.2	0.01	0.01	-Carcinogen -Liver
Allyl alcohol	107-18-6	140	970	0.1	0.02	0.02	-Kidney -Liver
Aluminum	7429-90-5	80000	*	***	***	***	-Body Weight
Aluminum phosphide	20859-73-8	35	880	***	***	***	-Body Weight
Ametryn	834-12-8	670	11000	0.8	0.08	0.08	-Liver
Ammonia	7664-41-7	NA	NA	NA	4	NA	-Respiratory
Ammonia (as total) (a)	7664-41-7	750	4000	570	100	100	-Respiratory
Aniline	62-53-3	13	120	0.03	0.02	0.02	-Blood -Carcinogen
Anthracene	120-12-7	21000	300000	2500	0.7	0.7	-None Specified
Antimony (b)	7440-36-0	27	370	5	***	***	-Blood -Mortality
Arsenic (b)	7440-38-2	0.7	4.1	5.8	***	***	-Carcinogen -Cardiovascular -Skin
Atrazine	1912-24-9	4.2	19	0.06	0.04	0.04	-Body Weight -Carcinogen
Azobenzene	103-33-3	7.9	31	0.03	0.06	0.06	-Carcinogen
Barium (b)	7440-39-3	120**	110000	1600	***	***	-Cardiovascular
Bayleton	43121-43-3	2400	46000	4.8	11	11	-Blood -Body Weight
Benomyl	17804-35-2	4000	77000	3.1	0.03	0.03	-Developmental
Bentazon	25057-89-0	2100	32000	1.2	NA	NA	-Blood
Benzaldehyde	100-52-7	3300 #	24000	4.8	0.4	0.4	-Gastrointestinal -Kidney
Benzene	71-43-2	1.2	1.7	0.007	0.5	0.5	-Carcinogen
Benzenethiol	108-98-5	0.2	1.3	0.001	NA	NA	-Liver
Benzo(a)anthracene	56-55-3	1.3	6.6	0.8	0.7	0.7	-Carcinogen

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Benzo(a)pyrene	50-32-8	0.1	0.7	8	1.2	1.2	-Carcinogen
Benzo(b)fluoranthene	205-99-2	1.3	6.5	2.4	1.6	1.6	-Carcinogen
Benzo(g,h,i)perylene	191-24-2	2500	52000	32000	4.8	4.8	-Neurological
Benzo(k)fluoranthene	207-08-9	13	66	25	1.6	1.6	-Carcinogen
Benzoic acid	65-85-0	180000	*	110	36	36	-None Specified
Benzotrichloride	98-08-7	0.04	0.09	0.0001	0.0002	0.0002	-Carcinogen
Benzyl alcohol	100-51-6	26000 #	670000	9.5	2.3	2.3	-Gastrointestinal
Benzyl chloride	100-44-7	1	1.6	0.002	0.03	0.03	-Carcinogen
Beryllium (b)(c)	7440-41-7	120	1300	63	***	***	-Carcinogen -Gastrointestinal -Respiratory
Bidrin [or Dicrotophos]	141-66-2	7.4	120	0.005	0.1	0.1	-Developmental
Biphenyl, 1,1- [or Diphenyl]	92-52-4	3000	34000	0.2	5.8	5.8	-Kidney
Bis(2-chloroethyl)ether	111-44-4	0.3	0.5	0.0001	0.05	0.05	-Carcinogen
Bis(2-chloroisopropyl)ether	108-60-1	4.5	8.1	0.003	0.003	0.003	-Blood -Carcinogen
Bis(2-ethylhexyl)phthalate [or DEHP]	117-81-7	72	390	3600	12	12	-Carcinogen -Liver
Bisphenol A	80-05-7	4000	79000	11	1.7	1.7	-Body Weight
Boron	7440-42-8	7900	200000	***	NA	NA	-Reproductive -Respiratory
Bromacil	314-40-9	7500	120000	0.6	0.6	0.6	-Body Weight
Bromochloromethane	74-97-5	95	530	0.6	NA	NA	-None Specified
Bromodichloromethane	75-27-4	1.5	2.2	0.004	0.1	0.1	-Carcinogen -Kidney
Bromoform	75-25-2	48	93	0.03	2.7	2.7	-Carcinogen -Liver
Bromomethane [or Methyl bromide]	74-83-9	3.1	16	0.05	0.2	0.2	-Gastrointestinal
Butanol, 1-	71-36-3	2900	21000	3	110	110	-Neurological
Butanone, 2- [or MEK]	78-93-3	4200	23000	17	490	490	-Developmental
Butyl benzyl phthalate, n-	85-68-7	17000 #	380000	310	56	56	-Liver
Butylate	2008-41-5	3200 #	40000	5.2	0.2	0.2	-Liver
Butylphthalyl butylglycolate	85-70-1	84000 #	*	4200	NA	NA	-None Specified
Cadmium (b)	7440-43-9	82	1700	8	***	***	-Carcinogen -Kidney
Calcium cyanide	592-01-8	3500	88000	***	NA	NA	-Body Weight -Neurological -Thyroid
Captan	133-06-2	230	750	0.1	0.03	0.03	-Body Weight -Carcinogen
Carbaryl [or Sevin]	63-25-2	7700	130000	8.7	0.0007	0.0007	-Kidney -Liver
Carbazole	86-74-8	49	240	0.2	6.5	6.5	-Carcinogen
Carbofuran	1563-66-2	130	910	0.2	0.0006	0.0006	-Neurological -Reproductive
Carbon disulfide	75-15-0	270	1500	5.6	0.8	0.8	-Developmental -Neurological
Carbon tetrachloride	56-23-5	0.5	0.7	0.04	0.06	0.06	-Carcinogen -Liver

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Carbophenothion [or Trithion]	786-19-6	11	250	13	1.5	1.5	-Neurological
Chlordane	57-74-9	2.8	14	9.6	0.003	0.003	-Carcinogen -Liver
Chlorine	7782-50-5	8300	140000	***	***	***	-Body Weight
Chlorine cyanide [or Cyanogen chloride]	506-77-4	1400	9700	71	0.3	0.3	-Body Weight -Neurological -Thyroid
Chloro-1,3-butadiene [or Chloroprene]	126-99-8	3.5	19	1.5	NA	NA	-Body Weight -Hair Loss -Nasal
Chloroacetic acid	79-11-8	130	1700	0.07	NA	NA	-Cardiovascular
Chloroaniline, 4-	106-47-8	270	3700	0.2	0.02	0.02	-Spleen
Chlorobenzene	108-90-7	120	650	1.3	0.2	0.2	-Liver
Chlorobenzilate	510-15-6	3.6	18	0.08	0.07	0.07	-Body Weight -Carcinogen
Chloroethane [or Ethyl chloride]	75-00-3	3.9 #	5.4	0.06	NA	NA	-Carcinogen -Developmental
Chloroform	67-66-3	0.3	0.6	0.03	2.8	2.8	-Carcinogen -Liver
Chloro-m-cresol, p- [or 4-chloro-3-methylphenol]	59-50-7	600	8000	0.4	0.6	0.6	-Body Weight
Chloromethane	74-87-3	3.2	4.6	0.01	2.3	2.3	-Carcinogen
Chloronaphthalene, beta-	91-58-7	5100	64000	260	NA	NA	-Liver -Respiratory
Chloronitrobenzene, p-	100-00-5	31	73	0.03	1.6	1.6	-Carcinogen
Chlorophenol, 2-	95-57-8	130	860	0.7	2.5	2.5	-Reproductive
Chlorophenol, 3-	108-43-0	370	5900	0.2	3.1	3.1	-None Specified
Chlorophenol, 4-	106-48-9	330	4400	0.04	1.2	1.2	-None Specified
Chlorothalonil [or Bravo]	1897-45-6	88	420	0.2	0.06	0.06	-Carcinogen -Kidney
Chlorotoluene, o-	95-49-8	200	1200	2.8	7.7	7.7	-Body Weight
Chlorotoluene, p-	106-43-4	170	990	2.5	NA	NA	-None Specified
Chlorpropham	101-21-3	16000	320000	51	7	7	-Bone Marrow -Kidney -Liver -Spleen
Chlorpyrifos	2921-88-2	250	5000	15	0.001	0.001	-Neurological
Chromium (total) (b)	NOCAS#	200	460	38	***	***	-Carcinogen -Respiratory
Chrysene	218-01-9	130	640	77	0.7	0.7	-Carcinogen
Cobalt	7440-48-4	5200	130000	***	NA	NA	-Cardiovascular -Immunological -Neurological -Reproductive
Copper	7440-50-8	150**	83000	***	***	***	-Gastrointestinal
Coumaphos	56-72-4	21	450	0.3	0.0007	0.0007	-Neurological
Crotonaldehyde	123-73-9	0.1	0.2	17	NA	NA	-Carcinogen
Cumene [or Isopropyl benzene]	98-82-8	220	1200	0.2	56	56	-Adrenals -Kidney
Cyanide (b)	57-12-5	34**	44000	28	***	***	-Body Weight -Neurological -Thyroid

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Cyanogen	460-19-5	560	3400	57	NA	NA	-None Specified
Cycloate	1134-23-2	340 #	4700	0.7	2.5	2.5	-Neurological
Cyclohexanone	108-94-1	150000 #	*	150	110	110	-Body Weight
Cymene, p	99-87-6	66	400	4.7	***	***	
Cypermethrin	52315-07-8	850	19000	70	0.005	0.005	-Gastrointestinal
DDD, 4,4'-	72-54-8	4.2	22	4	0.1	0.1	-Carcinogen
DDE, 4,4'-	72-55-9	2.9	15	18	0.1	0.1	-Carcinogen
DDT, 4,4'-	50-29-3	2.9	15	11	0.06	0.06	-Carcinogen -Liver
Diallate	2303-16-4	16	82	0.6	NA	NA	-Carcinogen
Diazinon	333-41-5	70	1200	0.02	0.00005	0.00005	-Neurological
Dibenz(a,h)anthracene	53-70-3	0.1	0.7	0.7	4.7	4.7	-Carcinogen
Dibenzofuran	132-64-9	320	6300	15	36	36	-None Specified
Dibromo-3-chloropropane, 1-2- [or DBCP]	96-12-8	0.7	3.8	0.001	NA	NA	-Carcinogen -Reproductive
Dibromochloromethane	124-48-1	1.5	2.3	0.003	0.2	0.2	-Carcinogen -Liver
Dibromoethane, 1,2- [or EDB]	106-93-4	0.01	0.05	0.0001	0.07	0.07	-Carcinogen -Reproductive
Dibutyl phthalate	84-74-2	8200 #	170000	47	1.5	1.5	-Mortality
Dicamba	1918-00-9	2300	40000	2.6	2.4	2.4	-Developmental
Dichloroacetic acid	79-43-6	280	4100	0.2	8.1	8.1	-None Specified
Dichloroacetonitrile	3018-12-0	340	2900	0.03	NA	NA	-None Specified
Dichlorobenzene, 1,2-	95-50-1	880 #	5000	17	2.8	2.8	-Body Weight
Dichlorobenzene, 1,3-	541-73-1	14	85	0.3	2.8	2.8	-None Specified
Dichlorobenzene, 1,4-	106-46-7	6.4	9.9	2.2	2.9	2.9	-Carcinogen -Liver
Dichlorobenzidine, 3,3'-	91-94-1	2.1	9.8	0.003	0.002	0.002	-Carcinogen
Dichlorodifluoromethane	75-71-8	77	410	44	NA	NA	-Body Weight -Liver
Dichloroethane, 1,1-	75-34-3	390	2100	0.4	NA	NA	-Kidney
Dichloroethane, 1,2- [or EDC]	107-06-2	0.5	0.7	0.01	0.02	0.02	-Carcinogen
Dichloroethene, 1,1-	75-35-4	0.1	0.1	0.06	0.03	0.03	-Carcinogen -Liver
Dichloroethene, cis-1,2-	156-59-2	33	180	0.4	NA	NA	-Blood
Dichloroethene, trans-1,2-	156-60-5	53	290	0.7	75	75	-Blood -Liver
Dichlorophenol, 2,3-	576-24-9	230	4100	0.4	1.2	1.2	-None Specified
Dichlorophenol, 2,4-	120-83-2	190	2500	0.2	0.1	0.1	-Immunological
Dichlorophenol, 2,5-	583-78-8	240	4600	1	4.3	4.3	-None Specified
Dichlorophenol, 2,6-	87-65-0	220	3700	0.7	2.5	2.5	-None Specified

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Dichlorophenol, 3,4-	95-77-2	240	4800	1.3	3.9	3.9	-None Specified
Dichlorophenoxy acetic acid, 2,4-	94-75-7	770	13000	0.7	0.9	0.9	-Kidney -Liver
Dichloropropane, 1,2-	78-87-5	0.6	0.9	0.03	15	15	-Carcinogen -Nasal
Dichloropropene, 1,3-	542-75-6	1.4	2.2	0.001	0.09	0.09	-Carcinogen -Kidney -Nasal
Dichlorprop	120-36-5	370	5800	0.3	0.3	0.3	-None Specified
Dichlorvos	62-73-7	0.3	0.4	0.0005	0.00002	0.00002	-Carcinogen -Neurological
Dicofol [or Kelthane]	115-32-2	2.2	11	0.01	0.0004	0.0004	-Adrenals -Carcinogen
Dieldrin	60-57-1	0.06	0.3	0.002	0.0001	0.0001	-Carcinogen -Liver
Diethylphthalate	84-66-2	61000 #	*	86	5.9	5.9	-Body Weight
Dimethoate	60-51-5	13	160	0.0004	0.0004	0.0004	-Neurological
Dimethrin	70-38-2	24000 #	440000	2500	1.3	1.3	-Liver
Dimethylformamide, N,N-	68-12-2	1400	8600	3	210	210	-Gastrointestinal -Liver
Dimethylphenol, 2,4-	105-67-9	1300	18000	1.7	3.2	3.2	-Blood -Neurological
Dimethylphthalate	131-11-3	690000 #	*	380	7.8	7.8	-Kidney
Dinitrobenzene, 1,2- (o)	528-29-0	23	240	0.01	0.2	0.2	-Spleen
Dinitrobenzene, 1,3- (m)	99-65-0	5.8	64	0.004	0.4	0.4	-Spleen
Dinitrophenol, 2,4-	51-28-5	110	1200	0.06	0.01	0.01	-Eye
Dinitrotoluene, 2,4-	121-14-2	1.2	4.3	0.0004	0.07	0.07	-Carcinogen -Liver -Neurological
Dinitrotoluene, 2,6-	606-20-2	1.2	3.9	0.0004	0.03	0.03	-Blood -Carcinogen -Kidney -Mortality -Neurological
Di-n-octylphthalate	117-84-0	1700	39000	480000	NA	NA	-Kidney -Liver
Dinoseb	88-85-7	65	830	0.03	0.03	0.03	-Developmental
Dioxane, 1,4-	123-91-1	23	38	0.01	1	1	-Carcinogen
Dioxin [or 2,3,7,8-TCDD]	1746-01-6	0.000007	0.00004	0.003	0.000001	0.000001	-Carcinogen
Diphenamid	957-51-7	2300	41000	2.6	20	20	-Liver
Diphenylhydrazine, 1,2-	122-66-7	1.1	4.8	0.002	0.01	0.01	-Carcinogen
Disulfoton	298-04-4	3.3	66	0.1	0.1	0.1	-Neurological
Diuron	330-54-1	150	2300	0.3	0.2	0.2	-Blood
Endosulfan	115-29-7	460	7800	3.8	0.005	0.0008	-Body Weight -Cardiovascular -Kidney
Endothall	145-73-3	1200	15000	0.4	0.4	0.4	-Gastrointestinal
Endrin	72-20-8	25	510	1	0.001	0.001	-Liver
Epichlorohydrin	106-89-8	14	80	0.03	2.4	2.4	-Carcinogen -Kidney -Nasal
Ethion	563-12-2	42	920	1.7	0.003	0.003	-Neurological
Ethoprop	13194-48-4	7.4	120	0.005	0.002	0.002	-Neurological
Ethoxyethanol, 2-	110-80-5	10000	72000	13	NA	NA	-Body Weight -Reproductive

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Ethyl acetate	141-78-6	9100	53000	26	26	26	-Body Weight -Mortality
Ethyl acrylate	140-88-5	2	3	0.004	0.6	0.6	-Carcinogen
Ethyl dipropylthiocarbamate, S- [or EPTC]	759-94-4	1400	14000	11	15	15	-Cardiovascular
Ethyl ether	60-29-7	260	1400	5	850	850	-Body Weight
Ethyl methacrylate	97-63-2	630	3500	3.5	NA	NA	-Kidney
Ethyl p-nitrophenyl phenylphosphorothioate [or EPN]	2104-64-5	0.8	18	0.02	0.003	0.003	-Neurological
Ethylbenzene	100-41-4	1500 #	9100	0.6	12	12	-Developmental -Kidney -Liver
Ethylene diamine	107-15-3	1100	11000	0.6	3.2	3.2	-Blood -Cardiovascular
Ethylene glycol	107-21-1	53000	370000	56	65	65	-Kidney
Ethylene oxide	75-21-8	0.3	0.4	0.0002	20	20	-Carcinogen
Fenamiphos	22224-92-6	19	340	0.02	0.003	0.003	-Neurological
Fensulfothion	115-90-2	19	310	0.01	0.004	0.004	-Neurological
Fluometuron	2164-17-2	980	16000	0.9	1.8	1.8	-None Specified
Fluoranthene	206-44-0	3200	59000	1200	1.3	1.3	-Blood -Kidney -Liver
Fluorene	86-73-7	2600	33000	160	17	17	-Blood
Fluoride	7782-41-4	840**	130000	***	***	***	-Teeth
Fonofos	944-22-9	140 #	2100	0.4	0.003	0.003	-Liver -Neurological
Formaldehyde	50-00-0	23	31	2.4	0.4	0.4	-Body Weight -Carcinogen -Gastrointestinal
Furfural	98-01-1	190	2400	0.09	2.7	2.7	-Liver -Nasal
Guthion [or Azinphos, methyl]	86-50-0	120	2400	0.2	0.0002	0.0002	-Neurological
Heptachlor	76-44-8	0.2	1	23	0.1	0.1	-Carcinogen -Liver
Heptachlor epoxide	1024-57-3	0.1	0.5	0.6	0.006	0.006	-Carcinogen -Liver
Hexachloro-1,3-butadiene	87-68-3	6.2	13	1.1	110	110	-Carcinogen -Kidney
Hexachlorobenzene	118-74-1	0.4	1.2	2.2	0.0008	0.0008	-Carcinogen -Liver
Hexachlorocyclohexane, alpha-	319-84-6	0.1	0.6	0.0003	0.0006	0.0006	-Carcinogen
Hexachlorocyclohexane, beta-	319-85-7	0.5	2.4	0.001	0.003	0.003	-Carcinogen
Hexachlorocyclohexane, delta-	319-86-8	24	490	0.2	NA	NA	-Kidney -Liver
Hexachlorocyclohexane, gamma- [or Lindane]	58-89-9	0.7	2.5	0.009	0.003	0.003	-Carcinogen -Kidney -Liver
Hexachlorocyclopentadiene	77-47-4	3.4	18	400	24	24	-Gastrointestinal
Hexachloroethane	67-72-1	38	87	0.2	0.08	0.08	-Carcinogen -Kidney
Hexahydro-1,3,5-trinitro-1,3,5-triazine [or RDX]	121-82-4	7.7	28	0.002	1.3	1.3	-Carcinogen -Reproductive

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Hexane, n-	110-54-3	680 #	3900	140	1200	1200	-Neurological
Hexanone, 2- [or Methyl butyl ketone]	591-78-6	24	130	1.4	NA	NA	-None Specified
Hexazinone	51235-04-2	2300	32000	1.1	5	5	-Body Weight
Hydroquinone	123-31-9	2600	35000	1.4	0.02	0.02	-Blood
Indeno(1,2,3-cd)pyrene	193-39-5	1.3	6.6	6.6	4.3	4.3	-Carcinogen
Iron	7439-89-6	25000	570000	***	***	***	-Blood -Gastrointestinal
Isobutyl alcohol	78-83-1	6400	42000	8.9	200	200	-Neurological
Isophorone	78-59-1	540 #	1200	0.2	3.8	3.8	-Carcinogen
Lead (d)	7439-92-1	400	920	***	***	***	-Neurological
Linuron	330-55-2	160	3100	0.04	1.4	1.4	-Blood
Lithium	7439-93-32	1700	44000	***	NA	NA	-None Specified
Malathion	121-75-5	1500 #	24000	4.2	0.003	0.003	-Neurological
Maneb	12427-38-2	410	8400	2.9	0.5	0.5	-Thyroid
Manganese	7439-96-5	1800	27000	***	NA	NA	-Neurological
Mercury	7439-97-6	4.6 #	28	2.1	0.01	0.01	-Neurological
Mercury, methyl	22967-92-6	1	5.9	0.002	NA	NA	-Neurological
Merphos	150-50-5	2.5	52	0.5	NA	NA	-Body Weight -Neurological
Methacrylonitrile	126-98-7	1	5.9	0.003	NA	NA	-Liver
Methamidophos	10265-92-6	3.1	36	0.001	0	0	-Neurological
Methanol	67-56-1	13000	90000	14	180	180	-Liver -Neurological
Methidathion	950-37-8	68	950	0.003	0.0001	0.0001	-Liver
Methomyl	16752-77-5	38	200	1.2	0.007	0.007	-Kidney -Spleen
Methoxy-5-nitroaniline, 2-	99-59-2	19	71	0.006	NA	NA	-Carcinogen
Methoxychlor	72-43-5	420	8900	160	0.1	0.1	-Developmental -Reproductive
Methyl acetate	79-20-9	6800	38000	37	NA	NA	-Liver
Methyl acrylate	96-33-3	260	1500	0.9	NA	NA	-None Specified
Methyl isobutyl ketone [or MIBK]	108-10-1	300	1600	2.6	110	110	-Kidney -Liver
Methyl methacrylate	80-62-6	1900	10000	0.1	32	32	-Nasal
Methyl parathion [or Parathion, methyl]	298-00-0	20	360	0.06	0.0003	0.0003	-Blood -Neurological
Methyl tert-butyl ether [or MTBE]	1634-04-4	4400	24000	0.2	150	150	-Eye -Kidney -Liver
Methyl-4-chlorophenoxy acetic acid, 2-	94-74-6	35	500	0.02	0.4	0.4	-Kidney -Liver
Methylaniline, 2-	95-53-4	2.6	6.4	0.0009	0.2	0.2	-Carcinogen

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Methylene bis(2-chloroaniline), 4,4-	101-14-4	6.2	21	0.001	NA	NA	-Carcinogen -Liver -Bladder
Methylene bromide	74-95-3	96	550	0.3	NA	NA	-Blood
Methylene chloride	75-09-2	17	26	0.02	7.3	7.3	-Carcinogen -Liver
Methylnaphthalene, 1-	90-12-0	93	510	2.2	10	10	-Body Weight -Nasal
Methylnaphthalene, 2-	91-57-6	110	610	6.1	9.1	9.1	-Body Weight -Nasal
Methylphenol, 2- [or o-Cresol]	95-48-7	2900	31000	0.3	1.9	1.9	-Body Weight -Neurological
Methylphenol, 3- [or m-Cresol]	108-39-4	2900	33000	0.3	3.3	3.3	-Body Weight -Neurological
Methylphenol, 4- [or p-Cresol]	106-44-5	300	3400	0.03	0.5	0.5	-Maternal Death -Neurological -Respiratory
Metolachlor	51218-45-2	12000 #	200000	1.2	0.01	0.01	-Body Weight
Metribuzin	21087-64-9	54	290	2.2	0.8	0.8	-Body Weight -Kidney -Liver -Mortality
Mevinphos	7786-34-7	18	270	0.01	0.0003	0.0003	-Neurological
Molinate	2212-67-1	120	1400	0.1	0.1	0.1	-Reproductive
Molybdenum	7439-98-7	440	11000	***	NA	NA	-Gout
Naled	300-76-5	150	2400	0.1	0.0002	0.0002	-Neurological
Naphthalene	91-20-3	55	300	1.7	2.2	2.2	-Body Weight -Nasal
Nickel (b)	7440-02-0	340**	35000	130	***	***	-Body Weight
Nitrate	14797-55-8	140000	*	***	***	***	-Blood
Nitrite	14797-65-0	8700	220000	***	***	***	-Blood
Nitrobenzene	98-95-3	18	140	0.02	0.6	0.6	-Adrenals -Blood -Kidney -Liver
Nitroglycerin	55-63-0	27	54	0.06	***	***	-Carcinogen -Cardiovascular
Nitrophenol, 4-	100-02-7	560	7900	0.3	0.3	0.3	-None Specified
Nitroso-diethylamine, N-	55-18-5	0.003	0.005	0.000001	0.0007	0.0007	-Carcinogen
Nitroso-dimethylamine, N-	62-75-9	0.009	0.02	0.000003	0.002	0.002	-Carcinogen
Nitroso-di-n-butylamine, N-	924-16-3	0.05	0.08	0.00009	0.002	0.002	-Carcinogen
Nitroso-di-n-propylamine, N-	621-64-7	0.08	0.2	0.00005	0.008	0.008	-Carcinogen
Nitroso-diphenylamine, N-	86-30-6	180	730	0.4	2.5	2.5	-Carcinogen
Nitroso-N-methylethylamine, N-	10595-95-6	0.02	0.04	0.000006	0.005	0.005	-Carcinogen
Nitrotoluene, m-	99-08-1	320	2400	0.7	3.6	3.6	-Spleen
Nitrotoluene, o-	88-72-2	400	3300	0.9	7.3	7.3	-Spleen
Nitrotoluene, p-	99-99-0	750	12000	0.9	7.3	7.3	-Spleen
Octamethylpyrophosphoramide	152-16-9	130	1600	0.06	NA	NA	-Neurological
Oxamyl	23135-22-0	1700	22000	0.9	0.04	0.04	-Body Weight
Paraquat	1910-42-5	340	5500	160	230	230	-Respiratory

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Parathion	56-38-2	500 #	11000	10	0.01	0.01	-Neurological
PCBs [Aroclor mixture]	1336-36-3	0.5	2	17	0.002	0.002	-Carcinogen -Immunological
Pebulate	1114-71-2	2000 #	17000	8.5	7.4	7.4	-Blood
Pendimethalin	40487-42-1	3200	58000	28	1	1	-Liver
Pentachlorobenzene	608-93-5	45	480	3.9	1.2	1.2	-Kidney -Liver
Pentachloronitrobenzene	82-68-8	3.4	13	0.2	0.06	0.06	-Carcinogen -Liver
Pentachlorophenol	87-86-5	7.2	28	0.03	0.2	0.2	-Carcinogen -Kidney -Liver
Permethrin	52645-53-1	4200	95000	880	0.003	0.003	-Liver
Phenanthrene	85-01-8	2200	36000	250	0.7	0.7	-Kidney
Phenol	108-95-2	1000**	430000	0.005	0.005	0.03	-Developmental
Phenylenediamine, p-	106-50-3	12000	150000	6.2	NA	NA	-Whole Body
Phenylphenol, 2-	90-43-7	480	2100	0.4	0.8	0.8	-Carcinogen
Phorate	298-02-2	16	320	0.3	0.001	0.001	-Neurological
Phosmet	732-11-6	1600	33000	5	0.004	0.004	-Body Weight -Liver -Neurological
Phthalic anhydride	85-44-9	11000	63000	76	NA	NA	-Kidney -Nasal -Respiratory
Prometon	1610-18-0	1200	23000	2.4	14	14	-None Specified
Prometryn	7287-19-6	320	6100	0.7	0.5	0.5	-Bone Marrow -Kidney -Liver
Propachlor	1918-16-7	990	17000	1.1	0.1	0.1	-Body Weight -Liver
Propanil	709-98-8	390	6700	0.4	0.2	0.2	-Spleen
Propazine	139-40-2	1600	28000	0.2	2.7	2.7	-Body Weight
Propylene glycol	57-55-6	* #	*	560	140	140	-Blood -Bone Marrow
Propylene oxide	75-56-9	3.1	9.3	0.0006	NA	NA	-Carcinogen -Nasal -Respiratory
Pydrin [or Fenvalerate]	51630-58-1	2100	46000	700	0.0001	0.0001	-Neurological
Pyrene	129-00-0	2400	45000	880	1.3	1.3	-Kidney
Pyridine	110-86-1	17	100	0.03	5.4	5.4	-Liver
Resmethrin	10453-86-8	2500	56000	1200	0.01	0.01	-Reproductive
Ronnel	299-84-3	4200	88000	1300	0.2	0.2	-Liver
Selenium (b)	7782-49-2	440	11000	5	***	***	-Hair Loss -Neurological -Skin
Silver (b)	7440-22-4	410	8200	17	***	***	-Skin
Simazine	122-34-9	7.8	34	0.08	0.1	0.1	-Blood -Body Weight -Carcinogen
Strontium	7440-24-6	52000	*	***	NA	NA	-Bone
Strychnine	57-24-9	22	360	0.02	0.3	0.3	-Mortality
Styrene	100-42-5	3600 #	23000	3.6	16	16	-Blood -Liver -Neurological
Terbacil	5902-51-2	920	14000	0.5	14	14	-Liver -Thyroid

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Terbufos	13071-79-9	1.9	29	0.02	0.001	0.001	-Neurological
Tetrachlorobenzene, 1,2,4,5-	95-94-3	12	100	0.5	0.5	0.5	-Kidney
Tetrachloroethane, 1,1,1,2-	630-20-6	4.2	6.3	0.01	NA	NA	-Carcinogen -Kidney -Liver
Tetrachloroethane, 1,1,2,2-	79-34-5	0.7	1.2	0.002	0.08	0.08	-Carcinogen
Tetrachloroethene [or PCE]	127-18-4	8.8 #	18	0.03	0.1	0.1	-Body Weight -Carcinogen -Liver
Tetrachlorophenol, 2,3,4,6-	58-90-2	2100	30000	3.2	0.07	0.07	-Liver
Tetraethyl dithiopyrophosphate	3689-24-5	39	690	0.1	0.0004	0.0004	-Bone Marrow -Neurological
Thiram	137-26-8	400	7600	1.1	0.005	0.005	-Neurological
Tin	7440-31-5	47000	880000	***	NA	NA	-Kidney -Liver
Toluene	108-88-3	520	2800	0.5	5.6	5.6	-Kidney -Liver -Neurological
Toluidine, p-	106-49-0	2.2	4.5	0.0009	NA	NA	-Carcinogen
Toxaphene	8001-35-2	0.9	4.5	31	0.002	0.002	-Carcinogen -Developmental
Triallate	2303-17-5	980	16000	8.4	6	6	-Liver -Spleen
Tributyltin oxide	56-35-9	25	570	7.6	0.2	0.2	-Immunological
Trichloro-1,2,2-trifluoroethane, 1,1,2- [or CFC 113]	76-13-1	18000 #	96000	11000	NA	NA	-Body Weight -Neurological
Trichloroacetic acid	76-03-9	770	8800	1.2	400	400	-None Specified
Trichlorobenzene, 1,2,3-	87-61-6	660	8600	4.6	5.6	5.6	-Adrenals -Body Weight
Trichlorobenzene, 1,2,4-	120-82-1	660 #	8500	5.3	1.7	1.7	-Adrenals -Body Weight
Trichlorobenzene, 1,3,5-	108-70-3	270	2400	16	NA	NA	-None Specified
Trichloroethane, 1,1,1- [or Methyl chloroform]	71-55-6	730	3900	1.9	2.6	2.6	-None Specified
Trichloroethane, 1,1,2-	79-00-5	1.4	2	0.03	0.2	0.2	-Carcinogen -Liver
Trichloroethene [or TCE]	79-01-6	6.4	9.3	0.03	0.9	0.9	-Carcinogen
Trichlorofluoromethane	75-69-4	270	1500	33	NA	NA	-Cardiovascular -Kidney -Mortality -Respiratory
Trichlorophenol, 2,4,5-	95-95-4	7700	130000	0.3	1.5	1.5	-Kidney -Liver
Trichlorophenol, 2,4,6-	88-06-2	70	230	0.06	0.1	0.1	-Carcinogen
Trichlorophenoxy acetic acid, 2,4,5-	93-76-5	690	9500	0.4	0.8	0.8	-Kidney
Trichlorophenoxy propionic acid [or Silvex]	93-72-1	660	14000	5.4	NA	NA	-Liver
Trichloropropane, 1,2,3-	96-18-4	0.02	0.03	0.00003	0.002	0.002	-Body Weight -Carcinogen -Kidney -Liver -Mortality
Trifluralin	1582-09-8	92	280	3.5	0.6	0.6	-Blood -Carcinogen -Liver
Trimethyl phosphate	512-56-1	19	57	0.004	NA	NA	-Carcinogen
Trimethylbenzene, 1,2,3-	526-73-8	18	96	0.3	NA	NA	-None Specified

Contaminant	CAS #	Direct Exposure		A Leachability Based on Groundwater Criteria	B Leachability Based on Freshwater Surface Water Criteria	C Leachability Based on Marine Surface Water Criteria	Target Organ/System or Effect
		Residential	Commercial/ Industrial				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Trimethylbenzene, 1,2,4-	95-63-6	18	95	0.3	7.2	7.2	-None Specified
Trimethylbenzene, 1,3,5-	108-67-8	15	80	0.3	6.7	6.7	-None Specified
Trinitrobenzene, 1,3,5-	99-35-4	2000	26000	1	0.09	0.09	-Blood -Spleen
Trinitrotoluene, 2,4,6-	118-96-7	28	97	0.002	0.3	0.3	-Carcinogen -Liver
TRPH	NOCAS#	460	2700	340	340	340	-Multiple Endpoints Mixed Contaminants
Uranium, natural	7440-61-1	110	820	***	NA	NA	-None Specified
Vanadium (b)	7440-62-2	67**	10000	980	NA	NA	-None Specified
Vernam	1929-77-7	51	510	0.1	0.2	0.2	-Body Weight
Vinyl acetate	108-05-4	320	1700	0.4	3	3	-Body Weight -Kidney -Nasal
Vinyl chloride	75-01-4	0.03	0.05	0.007	NA	NA	-Carcinogen
Xylenes, total	1330-20-7	8000 #	44000	0.2	3.9	3.9	-Body Weight -Mortality -Neurological
Zinc (b)	7440-66-6	26000	630000	6000	***	***	-Blood
Zinc phosphide	1314-84-7	26	660	***	NA	NA	-Body Weight
Zineb	12122-67-7	4100	82000	19	0.7	0.7	-Thyroid

Values rounded to two significant figures if >1 and to one significant figure if <1.

Potential for free product at soil concentrations below the direct contact soil CTL (Csat limit - see Table 8 of DERM Technical Report: "Development of Clean-up Target Levels (CTLs) for Chapter 24, Code of Miami-Dade County, Florida" (dated October 20, 2000).

* Contaminant is not a health concern for this exposure scenario.
** Direct exposure value based upon acute toxicity considerations.
*** Leachability values may be derived using the SPLP Test to calculate site-specific CTLs or may be determined using TCLP in the event oily wastes are present.

(a) = See discussion on the development of CTLs for Ammonia in the DERM Technical Report: "Development of Clean-up Target Levels (CTLs) for Chapter 24, Code of Miami-Dade County, Florida" (dated October 20, 2000)
Code.

(b) = Leachability values derived from USEPA Soil Screening Guidance (1996). These values were derived assuming soil pH 6.8. These leachability values are dependent upon both the metal concentration in soil and soil characteristics. Thus, if site-specific soil characteristics are different than the defaults, these leachability values may not apply. If this is the case, site-specific leachability values should be derived using methods such as TCLP or SPLP.

(c) = Phytotoxicity must be considered.

(d) = Residential direct exposure value from USEPA Revised Interim Soil Guidance for CERCLA Sites and BCRA Corrective Action Facilities. OSWER Directive 9355.4-12 (1994). The industrial direct exposure value was derived using methodologies outlined in USEPA 'Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing

Risks Associated with Adult Exposures to Lead in Soil', December 1996.

None Specified = Target organ(s) not available.

CAS # = Chemical Abstract Service registry number.
NA = Not available.

(c) For contaminants not listed in Section 24-11.1 (2) (E) (5), CTLs shall be established as set forth in Section 24-11.1 (2) (E) (1) and Section 24-11.1 (2) (E) (2). The CTLs calculated pursuant to Section 24-11.1 (2) (E) (5) (c) shall be provided in a technical report approved by the Director or the Director's designee.

(F) All technical plans, reports, proposals, or studies shall be submitted by the party or parties responsible for SRAs in accordance with the written orders of the Director, or the Director's designee, or as set forth herein. The Director, or the Director's designee, shall review each technical plan, report, proposal, or study and approve, approve with modifications or disapprove the aforesaid in writing within sixty (60) calendar days from receipt of the submittal.

To facilitate a phased risk-based assessment process that is iterative and that tailors site rehabilitation actions to site-specific conditions, the party or parties responsible for SRAs may submit to DERM for approval a proposal to establish applicable exposure factors and a risk management approach based upon land use at the site pursuant to the requirements set forth in Section 24-11.1 (2) (J) (2) and Section 24-11.1 (2) (K) (2).

(G) Site rehabilitation actions shall neither be, nor reasonably be expected to be, a source of pollution, as herein defined, or cause, or reasonably be expected to cause, a nuisance as defined in Section 24-3 (42), Section 24-3 (58), Section 24-14 or Section 24-26.

(H) Emergency response actions may be performed without prior approval from the Director, or the Director's designee, provided that these actions do not cause any adverse effects upon human health, public safety or the environment. The party or parties responsible for SRAs and performing the emergency response actions shall notify the Director, or the Director's designee, within 24 hours of the commencement of any such emergency response actions.

(I) Point of compliance, notification, source removal, and assessment procedures shall be as follows:

(1) The sampling points to determine compliance with Section 24-11.1 (2) shall be as set forth in Section 24-11 (6) herein. However, contamination may exist beyond the property boundary while clean-up, including natural attenuation in conjunction with appropriate monitoring, is proceeding.

(2) When contamination exists beyond the property boundary of the site from which the contamination originated, the property owners, residents, and tenants of any property onto or into which the contamination extends shall be notified. Notification shall be accomplished in writing by the party or parties responsible for SRAs within sixty (60) calendar days of the approval of the site assessment report. Notification shall include, but not be limited to, the following information: the type of contaminant and site remedy selected, a description of the location of the subject site, the name and address of the party or parties responsible for SRAs, and the name of a DERM contact. Persons receiving notice shall have 30 calendar days upon receipt of the notice to comment on the assessment and the site remedy selected. Nothing herein shall preclude any person from initiating a civil action as a result of said contamination.

(3) Prior to site closure as set forth in Section 24-11.1 (2) (J), source removal of free product and soil saturated with contaminants or free product is required, unless demonstrated through a feasibility study approved by the Director, or the Director's designee, that the source removal is neither cost effective nor technically feasible. Source removal of free product from a new

discharge shall be initiated as soon as possible but, in any event, no later than seven (7) calendar days after the discovery of free product. Source removal of free product from a previous discharge shall be initiated in accordance with the written orders of the Director, or the Director's designee, or the timeframes set forth in a source removal plan approved by the Director or the Director's designee.

Source removal of contaminated soils and saturated soils by excavation may be implemented at any time upon prior written notification by the party or parties responsible for SRAs to the Director or the Director's designee. Such notification shall be submitted to DERM at least three (3) calendar days prior to performing the source removal by excavation. Excavated soils shall be disposed of in accordance with 40 CFR 261, 40 CFR 761, Chapter 62-701, F.A.C., Chapter 62-713, F.A.C., and any other applicable federal, state and local regulations. A source removal report shall be submitted to the department within sixty (60) calendar days of completion of the source removal. The source removal report shall describe all activities performed during the source removal including all analytical results as well as all disposal manifests.

When excavated soil is temporarily stored or stockpiled on site, the soil shall be secured in a manner which prevents human exposure to contaminated soil and prevents soil exposure to conditions which may facilitate the spread of contamination. Any excavation shall be secured to prevent accidental or intentional entry by the public and shall comply with applicable federal, state and local regulations. Contaminated soils may be stored on site for ninety (90) calendar days, unless otherwise ordered by the Director or the Director's designee. Prior to the expiration of the ninety (90) calendar day period, the soils shall be disposed of in accordance with this section.

(4) The site assessment report shall include, but not be limited to: an investigation of the source(s) of contamination; an identification of the types of contaminants present; a determination of the extent and degree of contamination in all media which are impacted; a determination of the physical and environmental conditions and characteristics of the site and the underlying aquifer(s), if applicable; an identification of potential human and environmental receptors; and an evaluation of the current exposure and potential risk of exposure to those identified receptors. Groundwater sampling shall be performed less than two hundred seventy (270) calendar days before the submittal of the site assessment report.

The summary and conclusions of the approved site assessment report shall propose one of the following: no further action, no further action with conditions, monitoring only, risk assessment, or a remedial action plan.

(J) Site closure, in the form of a no further action or a no further action with conditions, shall be approved by the Director, or the Director's designee, when the CTLs or alternative CTLs established pursuant to Section 24-11.1 (2) (E) (3) and the requirements set forth in this section have been achieved.

(1) A no further action proposal shall be approved by the Director, or the Director's designee, if such proposal demonstrates that human health, public safety and the environment are protected and the following criteria are met:

(a) Concentrations of contaminants detected in soil shall not exceed the lower of the direct exposure residential soil CTLs or the applicable leachability-based soil CTLs set forth in Section 24-11.1 (2) (E) (5) (b).

The applicable leachability-based soil CTLs shall be the groundwater leachability-based CTLs. If surface waters are, or are reasonably expected to be, affected by contaminated groundwater, as demonstrated using monitoring well data, groundwater flow rate and direction, or fate and transport modeling, then the applicable leachability-based soil CTLs shall be the lower of the groundwater or the applicable freshwater or marine surface water leachability-based CTLs.

Notwithstanding the foregoing provisions of Section 24-11.1 (2) (J) (1) (a), alternative residential direct exposure and leachability-based CTLs may be proposed in accordance with the procedures set forth in Section 24-11.1 (2) (E) (3) (c) and Section 24-11.1 (2) (E) (3) (d).

(b) Concentrations of contaminants detected in groundwater shall not exceed the groundwater CTLs set forth in Section 24-11.1 (2) (E) (5) (a).

If surface waters are, or are reasonably expected to be, affected by contaminated groundwater, as demonstrated using monitoring well data, groundwater flow rate and direction, or fate and transport modeling, then the groundwater CTLs shall be the lower of the groundwater CTLs or the applicable freshwater or marine surface water CTLs set forth in Section 24-11.1 (2) (E) (5) (a).

(c) Concentrations of contaminants detected in surface water shall not exceed the applicable freshwater or marine surface water CTLs set forth in Section 24-11.1 (2) (E) (5) (a).

Nothing herein shall supercede the rules governing Outstanding Florida Waters, aquatic preserves, areas of critical state concern and any other rules adopted pursuant to Section 403.061 (34), Florida Statutes.

(d) It is demonstrated that contaminants in sediments are not detected in concentrations, quantities, proportions, levels or accumulations which are, or are reasonably expected to be, injurious to human, plant, animal, fish and other aquatic life, or property. This demonstration may be based, as applicable, on the Threshold Effects Levels published in the FDEP's guideline "Approach to the Assessment of Sediment Quality in Florida Coastal Waters" (dated November 1994), site specific bioassays, a site-specific risk assessment developed in accordance with Section 24-11.1 (2) (K) (2), or a combination thereof.

(e) If more than one contaminant is present or contamination is present in more than one medium, the human health-based CTLs shall be adjusted to achieve the following: for non-carcinogenic compounds affecting the same organ(s), the hazard index (sum of the hazard quotients) shall be 1 or less; and for carcinogens, the cumulative lifetime excess cancer risk level (sum of the lifetime excess cancer risk levels for each carcinogenic contaminant) shall be 1.0E-06 or less.

(2) A no further action with conditions proposal shall be approved by the Director, or the Director's designee, provided the following: the property owner of the location elects to

implement institutional and, if applicable, engineering controls; it is demonstrated, using site-specific data, modeling results, risk assessment studies, risk reduction techniques or a combination thereof, that human health, public safety and the environment are afforded protection equivalent to that provided in Section 24-11.1 (2) (E) (1) and Section 24-11.1 (2) (E) (2); and the following criteria are met:

(a) For contaminants detected in soil, a proposal for alternative soil CTLs shall be submitted to the department and shall achieve one of the following or a combination of the following:

(i) Concentrations of contaminants detected in soil shall not exceed the lower of the industrial direct exposure soil CTLs set forth in Section 24-11.1 (2) (E) (5) (b) or the applicable leachability-based soil CTLs, set forth in Section 24-11.1 (2) (E).

The applicable leachability-based soil CTLs shall be the groundwater leachability-based CTLs or alternative groundwater leachability-based CTLs derived in accordance with Section 24-11.1 (2) (J) (2) (a) (iii) and Section 24-11.1 (2) (J) (2) (b). If surface waters are, or are reasonably expected to be, affected by contaminated groundwater, as demonstrated using monitoring well data, groundwater flow rate and direction, or fate and transport modeling, then the applicable leachability-based soil CTLs shall be the lower of the groundwater or the applicable freshwater or marine surface water leachability-based CTLs.

If a marine surface water is, or is reasonably expected to be, affected by contaminated groundwater, and no other property or fresh surface water bodies are located between the source property boundary and the marine surface water body and the groundwater on-site is not utilized, then the applicable leachability-based soil CTLs shall be the marine surface water leachability-based soil CTLs.

Notwithstanding the foregoing provisions of Section 24-11.1 (2) (J) (2) (a) (i), alternative industrial direct exposure and leachability-based CTLs may be proposed in accordance with the procedures set forth in Section 24-11.1 (2) (E) (3) (c) and Section 24-11.1 (2) (E) (3) (d). In addition, the applicable leachability-based soil CTLs may be exceeded if it is demonstrated using groundwater monitoring data supported, if required, by site-specific modeling, that contaminants will not leach into groundwater at concentrations which exceed the applicable groundwater CTLs. The groundwater monitoring data shall be compiled for a minimum period of one year and shall include four (4) quarterly sampling events.

(ii) Concentrations of contaminants may exceed the soil CTLs if an engineering control, approved by the Director, or the Director's designee, in conjunction with the institutional control, is utilized to eliminate or control contaminant exposure and migration such that human health, public safety and the environment are afforded protection equivalent to that provided in Section 24-11.1 (2) (E) (1) and Section 24-11.1 (2) (E) (2).

(iii) Concentrations of contaminants detected in soil shall not exceed the alternative soil CTLs derived in accordance with Section 24-11.1 (2) (E) (3) and Section 24-11.1 (2) (K) (2).

(b) For contaminants detected in groundwater, a proposal for alternative groundwater CTLs shall be submitted to the department and shall provide the following:

(i) A complete evaluation of the current and projected use of the affected groundwater and documentation that the following conditions have been met:

(a) Source removal is completed as set forth in Section 24-11.1 (2) (I) (3).

(b) Groundwater contamination is not migrating away from a localized source.

(c) Groundwater concentrations at the property boundary, as determined by groundwater monitoring data supported, if required, by site-specific modeling, do not, and are not reasonably expected to, exceed the groundwater CTLs set forth in Section 24-11.1 (2) (E) (5) (a). The groundwater monitoring data shall be compiled for a minimum period of one year and shall include four (4) quarterly sampling events.

(d) A copy of the FDEP exemption order as set forth in Section 120.542, Florida Statutes, has been submitted for the applicable contaminants.

If surface waters are, or are reasonably expected to be, affected by contaminated groundwater, as demonstrated using monitoring well data, groundwater flow rate and direction, or fate and transport modeling, then the groundwater CTLs shall be the lower of the groundwater CTLs or the applicable freshwater or marine surface water CTLs set forth in Section 24-11.1 (2) (E) (5) (a).

If a marine surface water is, or is reasonably expected to be, affected by contaminated groundwater, and no other property or fresh surface water bodies are located between the source property boundary and the marine surface water body and the groundwater on-site is not utilized, then the groundwater CTLs shall be the marine surface water CTLs.

(ii) If there is a receptor which may potentially be exposed to on-site groundwater and such exposure has not been eliminated by the implementation of institutional and, if applicable, engineering controls, then concentrations of contaminants detected in groundwater shall not exceed the alternative groundwater CTLs derived in accordance with Section 24-11.1 (2) (E) (3) and Section 24-11.1 (2) (K) (2).

(c) Concentrations of contaminants detected in surface water shall not exceed the applicable freshwater or marine surface water CTLs set forth in Section 24-11.1 (2) (E) (5) (a).

Nothing herein shall supercede the rules governing Outstanding Florida Waters, aquatic preserves, areas of critical state concern and any other rules adopted pursuant to Section 403.061 (34), Florida Statutes.

(d) It is demonstrated that contaminants in sediments are not detected in concentrations, quantities, proportions, levels or accumulations which are, or are reasonably expected to be, injurious to human, plant, animal, fish and other aquatic life, or property. This demonstration may be based, as applicable, on the Threshold Effects Levels published in

the FDEP's guideline "Approach to the Assessment of Sediment Quality in Florida Coastal Waters" (November 1994), site specific bioassays, a site-specific risk assessment developed in accordance with Section 24-11.1 (2) (K) (2), or a combination thereof.

(e) If more than one contaminant is present or contamination is present in more than one media, the human health-based CTLs or alternative human health-based CTLs shall be adjusted to achieve the following: for non-carcinogenic compounds affecting the same organ(s), the hazard index (sum of the hazard quotients) shall be 1 or less; and for carcinogens, the cumulative lifetime excess cancer risk level (sum of the lifetime excess cancer risk levels for each carcinogenic contaminant) shall be 1.0E-06 or less.

(f) The property owner of the location at which site rehabilitation actions are being conducted elects to implement an institutional and, if applicable, engineering control to eliminate or control exposure of human and environmental receptors to contaminants. When an engineering control is used in conjunction with institutional controls, an engineering control plan shall be submitted to the department. The engineering control plan shall provide details of the design and construction of the engineering control and shall demonstrate that the engineering control is effective, reliable and capable of being monitored and maintained.

The no further action with conditions proposal shall include a copy of the proposed institutional control, in a form prescribed by the Director, or the Director's designee, and approved by the Board of County Commissioners, with site-specific closure conditions. Upon written approval by the Director, or the Director's designee, of the institutional control and, if applicable, engineering control plan, the institutional control shall be recorded in the public records of Miami-Dade County. A copy of the recorded instrument shall be submitted to the department and the engineering control, if applicable, shall be implemented prior to approval of the no further action with conditions proposal.

Upon demonstration to the satisfaction of the Director, or the Director's designee, by the party or parties responsible for SRAs that institutional and, if applicable, engineering controls are no longer required because the conditions set forth in Section 24-11.1 (2) (J) (1) have been achieved, the Director, or the Director's designee, shall release the institutional control.

(g) An operating permit in accordance with Section 24-35.1 shall be required for all sites for which site rehabilitation actions have been completed in accordance with the provisions set forth in Section 24-11.1 (2) (J) (2). The Director, or the Director's designee, shall approve, deny, or approve with conditions, restrictions or limitations any application for an operating permit.

(K) For sites which do not qualify for site closure in accordance with Section 24-11.1 (2) (J), one of the following, or a combination of the following, shall be submitted for approval by the Director, or the Director's designee, to achieve site closure pursuant to Section 24-11.1 (2) (J): a monitoring only plan, a risk assessment report, or a remedial action plan.

(1) The monitoring only plan

(a) The monitoring only plan for natural attenuation shall include, but not be limited to, an evaluation of the contaminant plume history, site conditions and aquifer chemical characteristics to demonstrate that the applicable CTLs will be attained in accordance with approval by the Director, or the Director's designee, and that monitoring only is the most cost-effective remedial approach. The monitoring period shall be a minimum of one year, unless two consecutive quarterly samplings have indicated that applicable CTLs have been met. The monitoring only plan shall also demonstrate that human health, public safety, and the environment will be protected. Upon completion of the approved monitoring, a proposal for a no further action, a no further action with conditions, an extension of the monitoring only plan, risk assessment, or a remedial action plan, in accordance with the requirements herein, shall be submitted to the department.

(b) The monitoring only plan to verify that compliance with the approved remedial action as set forth in Section 24-11.1 (2) (K) (3) has been achieved shall be a minimum of a one year period and shall include four (4) quarterly sampling events. However, if contamination was only present in the unsaturated zone during the site assessment and remediation tasks, only one groundwater sampling event approved by the Director, or the Director's designee, shall be required. Upon completion of the approved monitoring, a proposal for a no further action, a no further action with conditions, an extension of the monitoring only plan, risk assessment, or a remedial action plan modification, in accordance with the requirements herein, shall be submitted to the department for approval.

(2) The risk assessment shall include, but not be limited to, a human and environmental exposure assessment, toxicity assessment, cumulative risk characterization, and supporting documentation for the development of alternative CTLs. Alternative health-based CTLs shall be calculated using the risk equations set forth in the DERM Technical Report: "Development of Clean-up Target Levels (CTLs) for Chapter 24, Code of Miami-Dade County, Florida" (dated October 20, 2000), and site-specific exposure scenarios and input parameters. Upon approval of the risk assessment, a proposal for a no further action, no further action with conditions, monitoring only plan for natural attenuation or remedial action, in accordance with the requirements herein, shall be submitted to the department.

(3) The remedial action plan shall include, but not be limited to, all supporting documentation for the remedial technique proposed to achieve CTLs or alternative CTLs, or to qualify for natural attenuation in all contaminated media. Groundwater sampling shall be performed less than two hundred seventy (270) calendar days before the submittal of the remedial action plan to the department. Detailed technical documentation shall be provided for all elements of the proposed remedial process. Pilot testing may be required to support the design. A monitoring schedule shall be included to evaluate the performance of the clean-up. Within one hundred twenty (120) calendar days after the approval of the remedial action plan, the approved remedial action plan shall be implemented and record drawings of the operating remedial system shall be submitted.

Upon achieving the CTLs or alternative CTLs, or qualifying for natural attenuation in all contaminated media, a monitoring only plan, prepared in accordance with the requirements set forth in Section 24-11.1 (2) (K) (1), shall be submitted to the department.

If implementation of the approved remedial action plan does not achieve the CTLs or alternative CTLs, or does not qualify for natural attenuation in all contaminated media a

proposal for a monitoring only plan for natural attenuation, a risk assessment, or a remedial action plan modification, in accordance with the requirements herein, shall be submitted to the department.

(L) All applicable portions of the technical plans, reports, proposals or studies required as set forth in Section 24-11.1 (2) shall be signed and sealed by a licensed professional engineer registered in the State of Florida or licensed professional geologist registered in the State of Florida.

(M) All sampling and analyses shall be performed in accordance with Chapter 62-160, F.A.C., Quality Assurance. Reports submitted to the department which contain analytical data shall include, at a minimum, the following: original laboratory reports which include all information required in Chapter 62-160.670, F.A.C.; copies of the completed chain of custody records; copies of the completed water sampling log forms; and results from screening tests or on-site analyses.<<

Section 5. Section 24-12.2 of the Code of Miami-Dade County, Florida, is hereby amended to read as follows[1]:

Sec. 24-12.2 Regulation of underground storage facilities.

* * *

(11) Operators of underground storage facilities as well as any persons, individually or otherwise >>,<< having a legal, beneficial, or equitable interest in the underground storage facilities or in the real property upon which said underground storage facilities are located shall be jointly and severally liable and responsible for immediately accomplishing the following when the underground storage facility has discharged, is discharging or may be discharging any hazardous materials of any quantity whatsoever into the environment outside of said facility:

(a) Locating and determining the cause of the discharge.

(b) Stopping and preventing any further discharges.

(c) [[~~Detection,~~]] >>Notification of the discovery of contamination, << [[~~extraction, and recovery~~]] >>and implementation and completion of site rehabilitation actions for contaminants<< [[~~of all hazardous materials which have been discharged~~]] >>in accordance with Section 24-11.1 herein.<< [[~~in accordance with the methods and practices set forth in Publication 1628, ``A guide to the Assessment and Remediation of Underground Petroleum Releases'' Second Edition, August 1989, American Petroleum Institute, Washington, D.C.~~]]

* * *

Section 6. Section 24-35.1 of the Code of Miami-Dade County, Florida, is hereby amended to read as follows[1]:

Sec. 24-35.1 Operating Permits.

No person shall operate>>, maintain,<< or permit, cause, allow, let or suffer the operation >>or maintenance<< of a public water system, public sewerage system>>, location at which a site rehabilitation action has been completed in accordance with the provisions set forth in Section 24-11.1 (2) (J) (2),<< or any of the following facilities, all of which will reasonably be expected to be a source of air pollution, ground pollution or water pollution, without a valid operating permit issued by the Director [[~~of the Department of Environmental Resources Management~~]] or [[~~his~~]] >>the Director's<< designee or in violation of any condition, limitation or restriction which is part of an operating permit:

(1) Interim package sewage treatment plants;

* * *

>> ***(20)*** Locations at which a site rehabilitation action has been completed in accordance with the provisions set forth in Section 24-11.1 (2) (J) (2). <<

* * *

Section 7. Section 24-37 of the Code of Miami-Dade County, Florida, is hereby amended to read as follows[1]:

Sec. 24-37. Abnormal occurrences.

* * *

(2) *Power to stop operation of facility.* If in the judgment of the Director or [[~~his~~]] >>the Director's<< designee, the abnormal operation of any facility, equipment, process, or plant is causing or will cause air, water or ground pollution to such extent as to be or become dangerous to the public health, safety or welfare, the Director or [[~~his~~]] >>the Director's<< designee may require such corrective measures as may be necessary for the protection of the public on an emergency basis, and the Director or [[~~his~~]] >>the Director's<< designee shall have the power and authority to cause all operation(s) of the facility, equipment, process or plant to cease until appropriate corrective measures have been taken by issuing an order to the owner or operator thereof directing the cessation of the operation(s) or by ordering the utility providing water service to the facility or plant to cease providing such service. If the cessation of the operation(s) of any sewage treatment plant would cause greater danger to the public than that caused by the continued operation(s) thereof, the Director or [[~~his~~]] >>the Director's << designee, shall not order such cessation, but shall order that steps be taken immediately to rectify the dangerous condition. Any person polluting the ground or waters of the County shall, within the earliest practicable time,>>correct the violations caused by the pollution and<< restore said ground or waters [[~~to the condition existing before said pollution occurred.~~]]>>in accordance with the provisions of this chapter.<< If such person fails to make said restoration >>,<< the Director [[~~, Environmental Resources Management,~~]] may seek an injunction in a court having jurisdiction to compel said person to perform such restoration. In

the alternative and at his election, if restoration is not effected, the Director [[~~, Environmental Resources Management,~~]] may restore the ground or waters and shall be reimbursed by the persons causing the pollution for the actual costs of investigation, restoration and prevention. The Director [[~~, Environmental Resources Management,~~]] shall institute suit to enforce such reimbursement if it is not made within ten (10) days from demand therefor.

* * *

Section 8. Section 24-57 of the Code of Miami-Dade County, Florida, is hereby amended to read as follows[1]:

Sec. 24-57. Civil liability; joint and several liability; attorneys' fees.

(a) Whoever commits a violation of this chapter or any lawful rule or regulation promulgated under this chapter is liable to [[~~Metropolitan~~]] >>Miami-<<Dade County for any damage caused to the air, >>ground,<< waters, or property, including animal, plant, or aquatic life, of the County and for reasonable costs and expenses of the County in tracing the source of the discharge, in controlling and abating the source and the pollutants, and in restoring the air, waters, >>ground,<<and property, including animal, plant and aquatic life, of the County >>in accordance with the provisions of this chapter<<[[~~ to their former condition~~]], and furthermore is subject to the judicial imposition of a civil penalty for each offense in an amount of not more than twenty-five thousand dollars ($25,000.00) per offense. Each day during any portion of which such violation occurs constitutes a separate offense. Nothing herein shall give the Director[[~~, Environmental Resources Management,~~]] the right to bring an action on behalf of any private person.

(b) Whenever two (2) or more persons pollute the air>>, ground,<< or waters of the County in violation of this chapter or any lawful rule or regulation promulgated under this chapter or any order of the Director [[~~, Environmental Resources Management,~~]] so that the damage is indivisible, each violator shall be jointly and severally liable for such damage and for the reasonable cost and expenses of the County incurred in tracing the source of >>the<< discharge, in controlling and abating the source and the pollutants, and in restoring the air, waters>>, ground, <<and property, including the animal, plant and aquatic life of the County>>in accordance with the provisions of this chapter.<<[[~~ to their former condition.~~]] However, if said damage is divisible and may be attributed to a particular violator or violators, each violator is liable only for that damage attributable to his violation.

* * *

(h) Any person violating any provision of this chapter shall immediately >>correct the violation and<< restore the air, water, >>ground,<< and property, including but not limited to animal, plant, and aquatic life, affected by said violation >>in accordance with the provisions of this chapter.<< [[~~to the condition existing prior to the violation.~~]]

* * *

Section 9. If any section, subsection, sentence, clause or provision of this ordinance is held invalid, the remainder of this ordinance shall not be affected by such invalidity.

Section 10. It is the intention of the Board of County Commissioners, and it is hereby ordained that the provisions of this ordinance, including any Sunset provision, shall become and be made a part of the Code of Miami-Dade County, Florida. However, the attached DERM Technical Report: "Development of Clean-up Target Levels (CTLs) for Chapter 24, Code of Miami-Dade County, Florida" (dated October 20, 2000), shall not be codified. The sections of this ordinance may be renumbered or relettered to accomplish such intention, and the word ordinance may be changed to section, article, or other appropriate word.

Section 11. This ordinance shall become effective ten (10) days after the date of enactment unless vetoed by the Mayor, and if vetoed, shall become effective only upon an override by this Board.

Section 12. This ordinance does not contain a sunset provision.

PASSED AND ADOPTED:

Approved by the County Attorney as
to form and legal sufficiency. _____
Prepared by: _____